FREIGHT PROGRESS ANNUAL
MAY 20, 1944
MAY 29 1944
PRICE—ONE DOLLAR

Railway Age

Founded in 1856

Freight cars move 90% of all military freight and nearly three-fourths of all other freight. They move it at an average charge of less than a cent for hauling a ton of freight a mile.

On most commodities in common use, freight rates are only a very small fraction of retail prices—and are not higher today than they were before the war.

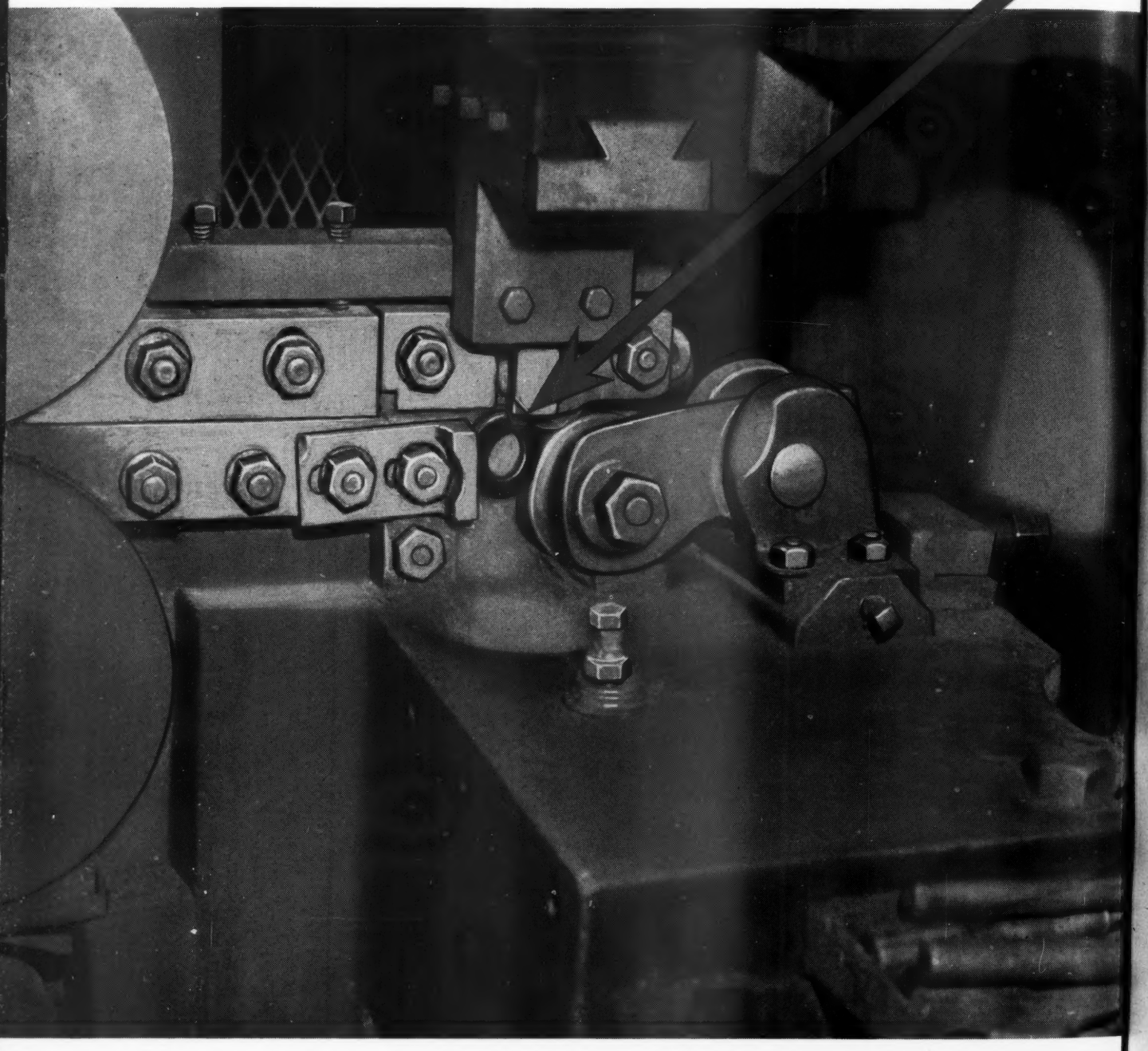
So not a single rise in commodity prices can be attributed to any increase in rail freight charges.

ASSOCIATION OF
AMERICAN RAILROADS
ALL UNITED FOR VICTORY

TRANSPORTATION LIBRARY

Reliance HY-CROME Spring Washers

A HY-CROME Spring Washer IS FORMED



"Tension There In Spite Of Wear"

THE automatic fabrication of LOCOMOTIVE HY-CROME Spring Washers under the supervision of experienced personnel leaves nothing to chance.

All mechanical features of these spring washers are closely controlled—I. D. and O. D. dimensions—free height and section size. Other processing features and heat treatment are just as carefully supervised to attain uniformity. LOCOMOTIVE HY-CROME Spring Washers may be applied with confidence in their ability to meet service conditions successfully.

EATON MANUFACTURING CO. RELIANCE SPRING WASHER DIVISION, MASSILLON, OHIO

Sales Offices: New York • Cleveland • Detroit • Chicago • St. Louis • San Francisco • Montreal

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered in U. S. Patent Office

Vol. 116 — May 20, 1944 — No. 21

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y. AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING. CLEVELAND 13: TERMINAL TOWER SEATTLE 1: 1033 HENRY BUILDING, SAN FRANCISCO 4: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES 14: 530 WEST 6th STREET.

SAMUEL O. DUNN, CHAIRMAN. HENRY LEE, PRESIDENT. ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY. F. H. THOMPSON, E. T. HOWSON, F. C. KOCH, R. E. THAYER, H. A. MORRISON, J. G. LYNE, H. E. McCANDLESS, VICE-PRESIDENTS. J. T. DeMOTT, TREASURER.

SAMUEL O. DUNN, EDITOR. ROY V. WRIGHT, MANAGING EDITOR. ELMER T. HOWSON, WESTERN EDITOR. JAMES G. LYNE, ASS'T. TO EDITOR. C. B. PECK. ALFRED G. OEHLER. E. L. WOODWARD. J. H. DUNN. R. A. DOSTER. H. C. WILCOX. NEAL D. HOWARD. CHARLES LAYNG. GEORGE E. BOYD. WALTER J. TAFT. M. H. DICK. JOHN S. VREELAND. C. MILES BURPEE. ARTHUR J. McGINNIS. J. L. STOVER. C. B. TAVENNER. H. E. MEASON. LIBRARIAN: EDITH C. STONE. EDITORIAL ASSISTANT: BETTY KETCHUM.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, $14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET.

Freight Progress Annual

EDITORIALS

War-Time Achievements—and Post-War Prospects 931
The "Back-Stage" Properties 933
Freight Equipment—Now and After the War 933
Signals Help to Move Freight 934
The Value of Co-operation 934

A REVIEW OF FREIGHT PROGRESS

Another Incredible Year in Wartime Railway Transportation .. 935
Manpower 937
All Records are Broken Again 946
Pointing Way to a Future Progress 950
Railways Meet All Demands for Military Traffic 952
Railways Meet Test in Handling Oil 955
Box Car Situation is Tight 957
Individual Railways Set Records 959
Modern Signaling Speeds Freight Shipments 967
What of the Future? 970
Fixed Properties Hold Key to Pace of Railways' War and Post-War Effort 980
Increased Material Allocations Aid Railways' War Effort 986
Shipper Co-operation Continues 990
Freight Motive Power Establishes a Peak Operating Record ... 992
Freight-Car Status Is Still Tense 994

NEW BOOK 997

RAILROADS-IN-WAR NEWS 998

GENERAL NEWS 1000

The Railway Age is Indexed by the Industrial Arts Index and also by the Engineering Index Service

★

PRINTED IN U. S. A.

New for All Types of Motive Power

NATHAN

SINGLE FEED
MECHANICAL
LUBRICATOR
TYPE "S"

THIS new single feed NATHAN Mechanical Lubricator is designed to provide efficient pressure lubrication for many parts on all types of railroad motive power. It is small, compact and may be applied in the cab or on the chassis close to the points to be lubricated thus eliminating the need for long oil lines.

On Diesel-Electric power the oil may be taken directly from the engine crank case thus eliminating the necessity of filling an extra oil reservoir. The pumping unit is valveless and is designed for use with pressures up to 2000 lbs. per square inch. This new lubricator may be applied in any position and can be actuated by lateral or vertical movement of the truck. On steam locomotives it offers a specially interesting application for the lubrication of stoker engines located on tenders.

NATHAN MANUFACTURING CO., 250 PARK AVE. NEW YORK, N. Y.

Established 1864

Freight Progress at a Glance

CONFOUND THE "EXPERTS": We are reminded, in the leading editorial in this issue, how New Deal "experts" at the outset of defense preparations were criticizing the railroads because they showed little enthusiasm for a proposal that the government finance for them the acquisition of 500,000 freight cars. The railroads actually provided 122 per cent more freight service in 1943 than in 1940 (a far larger traffic increase than the "experts" foresaw), with only 186,000 more freight cars. What other industry has been able to show so large an increase in production—with practically no plant enlargement and with so disproportionately small an addition to working forces? Moreover, the railroads have handled a completely unforeseen increase of three-fold in their passenger traffic. It seems just possible that practical transportation people —plus their equally practical customers— are still a somewhat more useful branch of the citizenry than "experts" whose claims to superior knowledge are based on nothing more tangible than sterile and incomplete statistics.

●

HAVE SHIPPERS LEARNED?: Patrons of railroad freight service have, during the war, been close enough to actual operations to see how remarkably economical railroad transportation can be when conducted on a basis of heavy volume. Will the users of transportation have learned from such observation that their route to post-war reduction in transportation costs lies in assigning to the railroads all the traffic the railroads are economically best fitted to handle? The leading editorial asks this question because, as a matter of fact, this was *not* the route to lower rates which many shippers sought in the period between the two wars. Instead, many of them fostered, for their own intended benefit, the development of agencies of transportation where shippers' bills were unloaded upon the taxpayers. The result was a thin allocation of traffic to the railroads which made their operating costs far higher than they would have been with heavier traffic. Inter-war transportation policies cost the taxpayers billions, and probably brought fewer "savings" to shippers than they would have enjoyed if their traffic had remained on the railroads to foster low-cost railroad service.

●

TO REPEAT PAST MISTAKES?: Proposals now before Congress to spend $3 billion of taxpayers' money on postwar "super"-highways, and another $1 billion or more on the development of inland waterways (including the St. Lawrence Seaway) suggest that the transportation experiences of this war have, so far, had limited educational effect.

●

SKILL AT MILITARY TRAFFIC: The way military traffic is handled affords an example of current transportation which epitomizes the elaborate co-operative science which the railroads and their customers have developed in squeezing the most movement out of a stable quantity of fixed and mobile plant. Both the railroads and the transportation officers of the armed services have exercised the greatest ingenuity—not only in "keeping 'em rolling," but also in keeping 'em loaded as they roll. Military movement is fully foresighted at all times, fully controlled, fully advance-scheduled—and that is why so much more is being done, with virtually no occasion for dissatisfaction anywhere. The heartening details of this productive collaboration are set forth on page 952.

●

MOULDING THE FUTURE: The all-embracing inquiry the railroads are conducing (under the aegis of the Railroad Committee for the Study of Transportation) is described in specific detail on page 950. The 15 subjects into which the investigation has been divided—with the names of the chairmen in charge of each such division—are revealed; and the progress to date of each study is reported. Special importance attaches to the "economic study," which includes a detailed inquiry commodity by commodity and territory by territory of what post-war production and traffic is likely to be. The whole undertaking has as its purpose the ascertainment of the "facts of life"—so that the railroads may most conveniently conform to them; with the disclosure of opportunities for the advantageous shaping of the railroads' circumstances.

●

STILL SHORT OF HELP: The strenuous efforts of individual railroads—assisted by some of the government agencies—to recruit and train additional employees, are just about enabling the roads to hold their own, if that. Railway employees are working longer hours than those of any other large industry, but help is still being taken away by other industries. Losses to the armed forces continue (and many classes of railway work receive little or no preferential treatment from draft boards), but the serious loss is to other industries rather than to the fighting forces. The interesting, and sobering, facts about this most acutely serious aspect of the entire national transportation situation are set forth herein, beginning on page 937.

●

TECHNICAL OBSOLESCENCE: Railroads faced with the double problem of meeting current traffic demands and of preparing for their peacetime responsibilities have had to exercise some managerial discretion in placing orders for new freight cars now, an article on page 994 explains. The tempting bait of five-year amortization loses its allure, it appears, when it can be applied only to cars that are technologically old before they leave the builders' shops, and most roads have been adapting the size of their current orders to their immediately irreducible necessities. Since the cars built now will be around for a long while to come, simple prudence would seem to require that they be designed to meet the needs of the times in which they are to serve. Perhaps railroad men have not so soon forgotten the avalanche of unkind allusions to their alleged coolness toward any thing new that was heaped upon them before Pearl Harbor by uninformed, or uninformable, critics—whose voices, they fear, too soon may be heard again.

THINKING OF TOMORROW: Convincing evidence that railway executives are giving constructive thought to future problems even as they struggle with those of the day is seen in the analysis of their comments on postwar opportunities which begins on page 970. Even though—as would be expected from a nation-wide cross-section of the results of their earnest cogitation along these lines—some differences as to the details of their conclusions are apparent, there is a convincing unanimity in the optimism with which they face the expected challenge of the competing publicly-subsidized forms of transportation, in the willingness they show to take quick advantage of technological improvements of demonstrable economic soundness, and in their receptive attitude toward relatively new and radical proposals regarding rate-making.

●

RATE-MAKING REFORMS: Particularly striking in the light of some of the recent demagogic political outbursts on the subject is the general agreement in principle among these practical, experienced leaders of the industry that a modernized, simplified, but not revolutionary, railway rate structure can be so developed that will meet at the same time the limitations imposed by rigid governmental regulation and the exacting requirements of a shipping public to which a surfeit of transportation facilities is likely to be available after the war. In truckload rates, trainload rates, dual-minimum carload rates, simplified l.c.l. rates, and above all in lower rates, made possible by reduced costs, these executives see means by which the railways not only can meet this postwar competition, but can continue in their role of the indispensable producer of transportation.

●

COMPETITION IN SERVICE: While these railroad executives look for tough competition for freight traffic in the postwar period, and plenty of it, their comments reflect a very general confidence in their ability to meet it, not only with rates advantageous to the shipper, but with service geared to the faster flow of commerce they anticipate. With accelerated schedules, with more equipment suitable for high-speed operations, and with enlarged staffs of solicitors and more adequate advertising, they plan to offer their customers a transportation service better tailored to their needs, and so to realize on the advantages they foresee the railroads retaining over competitors, less completely fitted to provide the economy, flexibility, and dependability that must accompany the speed that will be expected of all of them .

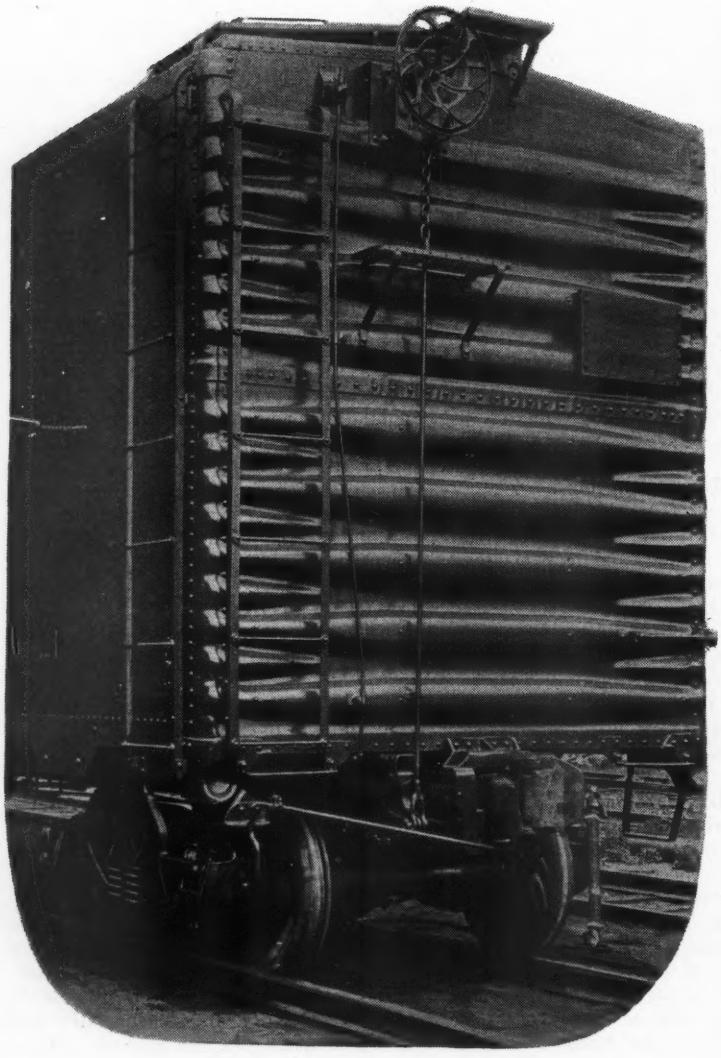
●

WHAT RR HAS DONE MOST?: If the reader will turn to page 959 herein, he will find listed, road by road, what the outstanding wartime achievements of each of 61 individual carriers have been; and he can answer for himself the question propounded in the caption of this paragraph. Our personal view is that the road we used to work for ranks mighty high in the list, but experience suggests the wisdom of letting every man answer such a question as this one without assistance.

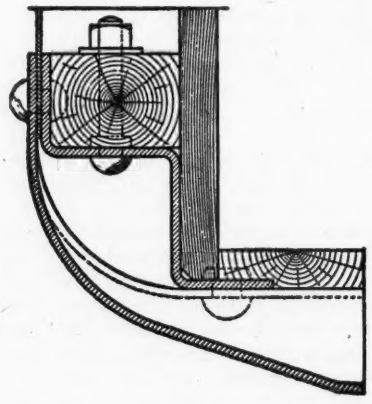
DREADNAUGHT ENDS

WITH ROUND CORNERS

IN COMBINATION WITH W-SECTION CORNER POSTS



PROVIDE THE INCREASED STRENGTH AND RESILIENCY REQUIRED TO PROTECT CAR AND LADING WITH PRESENT HIGH SPEED FREIGHT



W-SECTION CORNER POSTS FURNISHED BY BUILDER

STANDARD RAILWAY EQUIPMENT MFG. COMPANY

HAMMOND, INDIANA

WORKS: HAMMOND, INDIANA **NEW KENSINGTON, PA.**

CHICAGO OFFICE — 310 S. MICHIGAN AVE.

RAILWAY AGE

War-time Achievements—and Post-war Prospects

The nation will this month finish a period of four years, of which one and a half years were devoted to preparing for war and two and a half years have been devoted to carrying on war. The country's railways and shippers can review with great and patriotic pride what they have achieved during the last four years, and especially during the last year. The astounding record of what they have accomplished is brought as nearly up to date as is now practicable by the statistics given in the table on the next page.

Trend of War Freight Is Moderating

While again in 1944 the freight traffic being handled is the largest in history, it is increasing at a decelerating rate. Production for war purposes seems to have about reached its final maximum; and recently it was authoritatively estimated that only two-thirds as much of such production will be required to carry on the war against Japan alone as is now required to carry on the war against both Germany and Japan. Railways and shippers will have to continue to exert themselves to the utmost to keep available traffic moving the rest of 1944; but they can now begin giving real attention to the probable problems of transportation in the post-war period.

Anybody who had foreseen four years ago the enormous changes and increases in traffic demands upon the railways that have since occurred would have said the railways were entirely unprepared to meet them. New Deal "experts" who estimated much smaller increases in demands than have occurred criticized railway management because it opposed a proposal for government to finance acquisition of 500,000 new freight cars. Soon afterward government restrictions began preventing the railways from getting anywhere near all the equipment and materials they actually ordered; and in the year ended March 31, 1944, they rendered 122 per cent more freight service than in the year ended March 31, 1940, with an increase of only 186,000, or 10 per cent, in total freight cars on line and a small decrease in the number of road freight locomotives.

The nation's production has been enormously enlarged during the war by increase of manpower used in production, by huge investment in expansion of productive plant and by increased efficiency in the utilization of both manpower and plant. But there has been accomplished on the railways—with less manpower than was employed in the pre-depression years, with little expansion of plant during the war, and almost entirely because of enhanced efficiency—an increase in war-time freight service relatively greater than the increase in war-time production. And, in addition, the railways have handled a rapidly increasing passenger traffic which during the last year became *four times* as large as four years before.

Credit for what the railways have accomplished and are still accomplishing in handling freight must be divided between them, their employees, the shippers and government agencies. Without the co-operation of the shippers and government agencies the achievement would have been impossible. Also, it would have been entirely impossible without the many kinds of increases in efficiency that have been achieved by railway officers from the highest to the lowest, and the loyal support they have been given by most employees.

The war with Germany may continue throughout this year and the war with Japan much longer. But, however distant the "post-war period" may be, we are now in the first part of a period of transition from an "all out" war economy to a peacetime economy. The railways are suffering severely from a shortage of manpower which is seriously handicapping them in handling the heaviest traffic with which they have yet been confronted. But because we have entered a period of transition, not only are war production and traffic increasing less than formerly, but the railways are being enabled to get increasing amounts of equipment and materials. The second part of this transition period—that between the termination of the war with Germany and the termination of the war with Japan—may be the toughest part of the war for the western transcontinental lines, but probably will afford some relief for other railways. Finally will come, with the end of the war with Japan, the last part of the period of transition—the real post-war period.

Can the Railroads Prosper After the War?

How will the railways fare and what will they do during the post-war period? That will depend principally on the total volumes of production and traffic in the country, but also on how the railways are managed from now on, and how they and their competitors are

treated by government after the war. It cannot be too strongly emphasized that the enormous carrying capacity, and the great earning power when they have a capacity traffic, that the railways have demonstrated during the war, indicate most forcibly that how much prosperity they can enjoy after the war will depend principally on how much other industries prosper and produce. If forecasts of post-war annual national production ranging from $125 billion upward are fulfilled, total traffic available for all carriers will be much larger than in any pre-war period; and, with efficient management and fair government treatment, the railways should be able to earn adequate net returns.

The Factor of Taxes

This view may seem to be refuted by recent financial results. In spite of the largest gross earnings in history, the railways in the first quarter of 1944 made only $263 million net operating income—much less than in 1943, and only about as much as the $259 million made in 1929. But their net earnings *before taxes,* the true measure of their earning capacity, were only $355 million in the first quarter of 1929 and were $707 million in the first quarter of 1944—their taxes in the first quarter of 1929 having been only $96 million, and in the first quarter of 1944 $440 million. If industry in general is to prosper after the war present federal corporation taxes will have to be reduced one-half or more. The taxes of railways may reasonably be expected to be reduced as much as those of other industries; and, as the figures show, with other things equal, but taxes in 1944 only half as large as they actually were, the railways would have earned almost twice as much net operating income in the first quarter of 1944 as in the first quarter of 1929.

That railway management fully intends to use all the ability and financial resources available to it to so expand and improve railway properties and service and reduce costs and rates as to satisfy shippers in the post-war period is clearly shown by interviews with railway chief executives and traffic officers that are quoted at length elsewhere in this issue of *Railway Age.* The railways expect to have severe competition, and they are planning accordingly.

The railways cannot expect to have after the war all the forms of co-operation from shippers that they are receiving during the war. They must expect the shippers to do what they believe it is to their interest as shippers to do; and what every shipper will want will be the best transportation service he can get at the lowest rates at which he can get it. But war-time experience must have taught shippers as well as railways that they did not always act between World War I and World War II in accordance with their own true interests. It was not to their interest to so manage their affairs then as to foster the development—largely with the taxpayers' money—of a competition in transportation that diffused traffic among so many carriers that no class of carriers was able to get the volume required to enable it to reduce its costs and rates to the lowest reasonably practicable minimum.

Four Years of Railroad Progress

	Twelve Months Ended			Per cent increase or decrease 1944 compared with	
	March 31, 1940	March 31, 1943	March 31, 1944	1940	1943
Investment in property (thous.)	$ 26,089,000	$ 26,643,405	$ 27,021,610	+ 3.6	+ 1.4
Revenue ton-miles (thous.)	333,767,510	676,843,679	738,642,302	+121.5	+ 9.1
Revenue passenger-miles (thous.)	23,135,375	62,701,267	92,683,414	+300.6	+47.8
Gross earnings (thous.)	4,083,596	8,073,747	9,236,567	+126.2	+14.4
Total operating expenses (inc. equip. and jt. facility rents) (thous.)	3,103,720	5,035,729	6,083,990	+ 96.0	+20.8
Taxes (thous.)	361,104	1,432,353	1,869,049	+417.6	+30.5
Net railway operating income (thous.)	618,100	1,603,933	1,283,527	+107.7	−20.0
Per cent earned on investment	2.37	6.02	4.75	+100.4	−21.0
Average number of employees	1,000,323	1,306,921	1,370,290	+ 37.0	+ 4.8
Equipment Situation	**March 1, 1940**	**March 1, 1943**	**March 1, 1944**		
Locomotives—					
Total number on line (inc. switching)	42,724	42,224	42,879	+ 0.4	+ 1.6
Number in bad order	9,562	4,440	4,807	− 49.7	+ 8.3
Number serviceable	33,162	37,784	38,072	+ 14.8	+ 0.8
Number stored serviceable (surplus)	3,058	667	633	− 79.3	− 5.0
Number in use	30,104	37,117	37,439	+ 24.4	+ 0.9
Road Freight Locomotives—					
Total number on line	22,478	22,035	22,341	− 0.6	+ 1.4
Number in bad order	5,760	2,620	2,808	− 51.3	+ 7.2
Number serviceable	16,718	19,415	19,533	+ 16.8	+ 0.6
Number stored serviceable (surplus)	1,817	297	307	− 83.1	+ 3.4
Number in use	14,901	19,118	19,226	+ 29.0	+ 0.6
Freight cars—					
Total number on line	1,852,690	2,026,092	2,038,796	+ 10.0	+ 0.6
Number in bad order	158,947	47,670	45,235	− 71.5	− 5.1
Number serviceable	1,693,743	1,978,422	1,993,561	+ 17.7	+ 0.8
Number surplus cars	177,873	41,130	17,351	− 90.2	−57.8
Number in use	1,515,870	1,937,292	1,976,210	+ 30.4	+ 2.0

Low Rates—if Railroads Are Given Volume

Experience during the war has demonstrated that after the war shippers can get the best practicable transportation service and the lowest practicable freight rates *as a whole* only by causing concentration on the railways of all the freight business the railways are suitable for handling. This will be necessary if the railways are to reduce their operating costs to the low-

est practicable level; and once the railways have done this, other carriers will be automatically restricted to the traffic that they are naturally better fitted than the railways to handle.

Subsidies Distort Transportation Economy

Concentration on the railways of all the traffic they are fitted to handle will require the elimination of all subsidies from transportation. And why should not this be done, when (1) a demand by any class of carriers for subsidies is an admission that, in proportion to the service it renders, its operating costs are higher than those of competing carriers, and (2) there will be need for abolition of all subsidies in order adequately to reduce government spending and taxes?

The shippers have promoted their own interest as well as served the nation by helping the railways during the war to handle much the largest traffic in history, and, in spite of the highest wages in history, to handle it at the *lowest costs, exclusive of taxes,* per unit of traffic at which traffic has been handled in this country since before World War I. The shippers can likewise serve their own post-war interest by exerting their great influence in future for a national transportation policy that will exclude all subsidies, give all carriers equality of opportunity and cause competition to result in each carrier and class of carriers getting a volume of traffic proportionate to the quality of the service it renders and to the economy with which it renders it.

The "Back Stage" Properties

In the great drama of war-time transportation train operation holds the stage as the personification of the dynamic effort that is driving the railways to their record-breaking achievements.

However, to make the record complete, one article in this issue deals with the fixed properties of the railways, and makes it abundantly clear that, the importance of locomotives and cars notwithstanding, all progress in railway transportation must, of necessity, be predicated upon a sound roadbed and track structure, supported by adequacy in all of the other elements of the fixed properties.

The finest railway equipment in the world can be brought to a walk, or become completely immobilized, through failure to provide a sound roadbed and track structure, and adequate facilities with which to keep them in service and in repair. Those responsible for the adequacy of the fixed properties did not need the flood of war traffic to apprise them of this fundamental fact.

Lest any one be unaware of the magnitude of the constant tasks of construction and maintenance, it may be pointed out that nearly $2,290,000,000 were expended on these phases of railroading during the last two years alone, a sum which, large as it was, was held down materially by the inability of the railways to secure a large part of the materials, work equipment and labor which they needed. By contrast, expenditures for similar purposes during the two depression years 1933 and 1934 totaled only $892,781,000.

As large as has been the attention given to the fixed properties during the last two war years, the job is far from completed. To continue to offset the increased wear and tear caused by the unprecedented present traffic peak, expenditures by the railways for additions to and the maintenance of their tracks and structures in 1944 will exceed even the large expenditures of the last two years. Without such attention to the "back stage" properties of the railways, there could be no successful war transportation.

Freight Equipment—Now and After the War

The volume of freight traffic continues to increase. So does the number of new cars installed by the railroads, but not at the rate at which the demand is increasing. What prevents a breakdown of freight transportation under these conditions? The answer is an amazing increase in the fluidity of freight-car movement. The picture may be presented by a comparison of performance in each of three months—January and October, 1943, and January, 1944.

With a revenue loading of nearly 3,100,000 cars in January, 1943, 1,705,000 cars on line averaged 17.1 days between loadings. In January, 1944, 1,714,000 cars moved nearly 3,400,000 car loads with 15.6 days per car between loadings. This difference of a day and a half between loadings is the equivalent of 145,000 cars, of which 54,500 were obtained by the reduction in the number of cars awaiting repairs and surplus, largely the latter, and over 91,000 cars by the expedited performance of the active cars. In October, 1943, 1,718,000 cars handled about 3,900,000 revenue loadings, with an average of 13.8 car days between loadings. Comparing this with January, 1944, there are still available the equivalent of 26,000 more cars than were utilized in January. All but about 4,000 of these are available as the result of expedited handling of the active cars; surpluses and cars under repairs are nearly as low in January as in October.

The outlook for additional new cars, while better than a year ago, is by no means a rosy one and there seems little likelihood of any marked relief from the shortages which have been continuous since last fall.

The question has been raised at times whether the apparent car shortages are really not motive-power shortages. When the factors indicative of freight-car utilization continue to rise, there can be no general shortage of motive power. No doubt there have been sporadic local shortages, either of locomotives or crews —mostly in yard service.

Both cars and locomotives continue to be worn out

at a rate faster than the effects of wear and tear are being restored. Care has been exercised to insure safe operation, and deterioration of those kinds which can continue for considerable periods without causing a complete failure continues to accumulate.

The railways are showing no disposition to take undue advantage of the liberal policy of the government with respect to the retirement of equipment purchased for the movement of wartime traffic. Since much of the equipment which can now be purchased, particularly freight cars, will be technically obsolete when it is delivered, this is sound policy. Even though the investment can be retired in five years, such equipment units only five years old will be a serious hindrance to rehabilitation in the postwar years.

What of the postwar years? The railways will come out of the war with an accumulation not only of obsolescence of their equipment inventories, but also of wear and tear which will weigh heavily in favor of extensive replacements. That new freight cars will be acquired at a rate averaging not less than 100,000 units per year for some years seems conservative. Considering the inventory of freight locomotives, at least 16,000 of those now in service will be lacking the qualities of true survival value once the emergency is over. There are still more than 7,000 steam locomotives of switching types. Indeed, in January over 11,000 steam locomotives were assigned to switching service for probably more than half of which the Diesel switcher can compete. If traffic continues at a satisfactory level following the war, yearly purchases of 2,000 or more locomotives for several years are not beyond the probabilities.

Signals Help to Move Freight

Wartime transportation, involving large quantities of traffic which must be moved promptly, has focused attention on the shortcomings of the out-moded system of authorizing train movements by timetable and train orders. The most important defect of this system of train direction is that trains lose too much time waiting on passing tracks, and in many instances waiting in yards after they are ready to go, when actually time and idle tracks are available to advance these trains if there were some means of authorizing them to do so on short notice, based on the minute-to-minute progress being made by other trains. This need is being met on not a few lines during the present emergency with centralized traffic control, which includes track circuit-controlled signals whereby the trains themselves automatically provide protection against collisions; power machines to operate passing track switches, thus saving train stops; and semi-automatic signals, the aspects of which authorize trains to move, thereby eliminating timetables and train orders.

This system of C. T. C. is not new, but the results that are being accomplished in those territories in which it has been installed to help move war traffic are news. On many single track lines the increased traffic resulted in serious delays under timetable and train order operation. Facing this fact, the railroads, the War Production Board and the manufacturers have co-ordinated in making it possible to extend C. T. C. so that since December 7, 1942, centralized traffic control has been installed or is now under construction on approximately 3,000 miles of line.

The benefits of C. T. C. are that, on the average, every freight car saves approximately one minute on every mile of road so equipped. Thus, in one territory about 123 miles long, the average saving is two hours; and on an engine district of 175 miles the saving is about three hours. These results are being accomplished without increasing the number of locomotives and in some instances the number is actually decreased.

The Value of Co-operation

The magnificent job that the railways are doing in handling the largest volume of freight ever moved in history is outlined in the following pages. It is a record of efficiency never excelled by any industry; and a tribute to the foresight and ability of American railway executives in increasing the capacity of the properties before the depression and maintaining it during the depression, particularly when it is considered that they spent billions to back their opinions during a period of unbridled, subsidized and unfair competition. That competing carriers have failed to keep pace with the stern necessities of wartime transportation shows how right railway executives were and how vital railway transportation is to the Nation in war or in peace. Not only have individual railway officers labored heroically to keep things moving, but they have been aided by the overall efforts of the officers of the Association of American Railroads.

But credit does not end there. The men in the ranks are deserving of the utmost praise for the manner in which they have assisted in doing the job. Credit is also due to those outside the railways industry but intimately concerned in its achievements—the shippers and receivers of freight. Individually and through their associations—the National Industrial Traffic League, the thirteen regional advisory boards and the national association of these boards—they have labored long and hard for increased car utilization.

The Interstate Commerce Commission's Bureau of Service and the Office of Defense Transportation have contributed their vitally important share by doing many things that would have been quite beyond the power of the railways. The Transportation Corps officers of the Army, the transportation officers of the Navy and of the other armed services, all have approached the problem co-operatively and constructively.

The complete picture is a stirring one. It shows what a free people can do when given an opportunity to tackle a gigantic problem without coercion.

In Wartime Railway Transportation

Carriers continue to do the "impossible" in handling an all-time peak traffic load

THE railways and shippers of this country have done it again! As shown in articles that follow in this issue, railway transportation scaled new heights in output, and records of operating efficiency were again broken in another wartime year. Outstanding performances were recorded in the handling of military and other government freight, the volume of which reached new high levels during the year; coincident with this, the task of handling other traffic essential to the civilian economy was also performed efficiently and without delay. The manner in which the railways have handled these vast quantities of freight when other means of transportation failed to meet the needs of the wartime emergency will not be forgotton by shippers after the war.

The traffic which the railways were called upon to handle in such volume comprised a wide variety of freight that moved in large quantities and in many different directions. It included transcontinental freight of all kinds, record quantities of oil moving from the southwest to eastern areas, coal from the West Virginia fields for New England, perishables from Florida to the northern Atlantic and New England states, and many others. The shipper who fails to remember these achievements in the postwar period will have a short memory indeed.

As a part of the general picture, individual railways have established remarkable performance records and these, also, are outlined in this issue. Individual shippers, too, as well as the regional advisory boards and the National Industrial Traffic League, have contributed unstintingly to the making of these records and their activities are also described.

The time is rapidly approaching when the railways, along with other industries, must look beyond the immediate present to the future. The *Railway Age* has conducted a survey of executive opinion of postwar freight service and the facts contained therein, as described in more detail later, are of utmost importance to the shippers.

The record made by the railways during the last year was truly remarkable and railway officers, the various government and other agencies, and the shippers who have co-operated so universally, are deserving of the highest commendation. However, for the first time since these Annual Freight Progress issues were inaugurated in 1940, we find that "a cloud no bigger than a man's hand" has appeared on the transportation horizon. For the first time since the war, tight car situations of more than temporary and local importance have appeared. Following the last wheat harvesting season, a number of elevators in the Northwest were closed because of lack of cars suitable for wheat movement, as described in greater detail in an article on the transportation of wheat on a following page.

Why the "Car Shortage"?

Many reasons have been given for this shortage of cars, including the diversion of American box cars to Canada for the movement of Canadian wheat to the Southeastern states, which diversion has received so much publicity on the floor of the United States Senate and elsewhere. However, the real reason for this and other tight car situations is not so much this diversion of cars to Canada; or the fact that the railways have not been permitted to buy as many cars as they need. These factors have had their effect, of course, but the primary reason is the increasingly acute shortage of manpower—the lack of men to repair promptly the cars that are available and to supply them with grain doors; the lack of men to staff

the trains that move the cars and to keep in repair the locomotives that pull these trains.

As early as a year ago, in the May 22, 1943, Freight Progress issue of the *Railway Age,* attention was directed to the lack of men for necessary railway service and the warning was then sounded that understaffed railways could not continue indefinitely the colossal job that they were then doing without relief from this constant drain. In spite of the adoption of heroic measures by the railways during the year, the situation grew steadily worse, although recent developments indicate that at least some government agencies are aware of the true seriousness of the situation that confronts the railways. It now seems that co-operation and co-ordination of effort will put a stop to this flirtation with disaster.

As described later, the vitally important oil movement and the all-important transportation of military supplies have been handled even more efficiently than in previous years. The handling of materials for war involves a most difficult operating technique. Here, the normal orderly procedure of mass transportation must frequently be abandoned in favor of emergency movements, and there is no opportunity for advance planning, which is so necessary for moving an unprecedented volume of traffic efficiently. Fortunately, the officers of the Transportation Corps, as well as the other government shipping agencies, have been most co-operative with the A. A. R. and the individual railways in meeting this most difficult problem.

No Congestion at Ports

The railways of the industrial East and those of the South, with its innumerable military establishments, have been outstanding in their efficient transportation of military supplies, largely for the European fronts. Similarly, one has only to read the dispatches from the Pacific fronts to discover the truly astounding feats that the transcontinental lines have been performing in getting materials to the Pacific Coast for trans-shipment to those far-flung battle areas. Meanwhile, the ports on both the Pacific and the Atlantic coasts have been kept fluid and there has been no suggestion of World War I pile-ups at the seaports.

To the articles setting forth the transportation achievements of the railways, are added other articles describing the present condition of cars and locomotives, the activities of the maintenance of way and signal departments to keep pace with the staggering traffic load and other tasks of the railways, which are essential to the maintenance of an efficient transportation plant. All these articles comprise what might be termed the historical or current record section of the issue.

Railway officers would, however, be remiss in their duties to their stockholders and to the nation if they were not beginning to give thought also to postwar transportation. A collapse of the railways in the postwar period would be a catastrophe for the country that would be second in importance only to a complete failure of wartime transportation. Therefore, the *Railway Age* has conducted a survey of executive thinking and opinion with regard to postwar competition, service, rates, equipment and other pertinent factors and the results of this survey are given in an article in this issue. In such a survey, a question that presents itself early is—would the railways be able to handle a volume of traffic in peacetime comparable with that now being moved without large increases in rolling stock and facilities? This leads at once to a consideration of the conditions that will prevail in the handling of peacetime transportation and the contrast with those which now exist in wartime. What advantages will the railways have in peacetime that they do not possess now? The first and most important is that they will not then be faced by an acute shortage of manpower, and this is not an advantage that can be dismissed lightly.

Another favorable factor is the disappearance of existing restrictions of all kinds on materials and supplies, up to the ability of the railway supply manufacturers to produce them in the quantities needed. Moreover, after the demobilization period is over, the railways will no longer be called upon to interrupt the smooth flow of their normal operations to handle special troop trains and military traffic movements. Also, traffic will again resume its routine channels, instead of concentrating as at present at ports and military centers, many of which are in unhandy places, so far as the railways are concerned.

Adverse Factors in Peacetime

But any analysis of war and postwar transportation must, of necessity, include consideration also of the disadvantages. First of all, with the stimulus of patriotism removed, it is probably too much to expect that railway employees will maintain their present high transportation output per man. Furthermore, the railway plant will have deteriorated seriously by the time the war is over, and rehabilitation cannot be accomplished in a day.

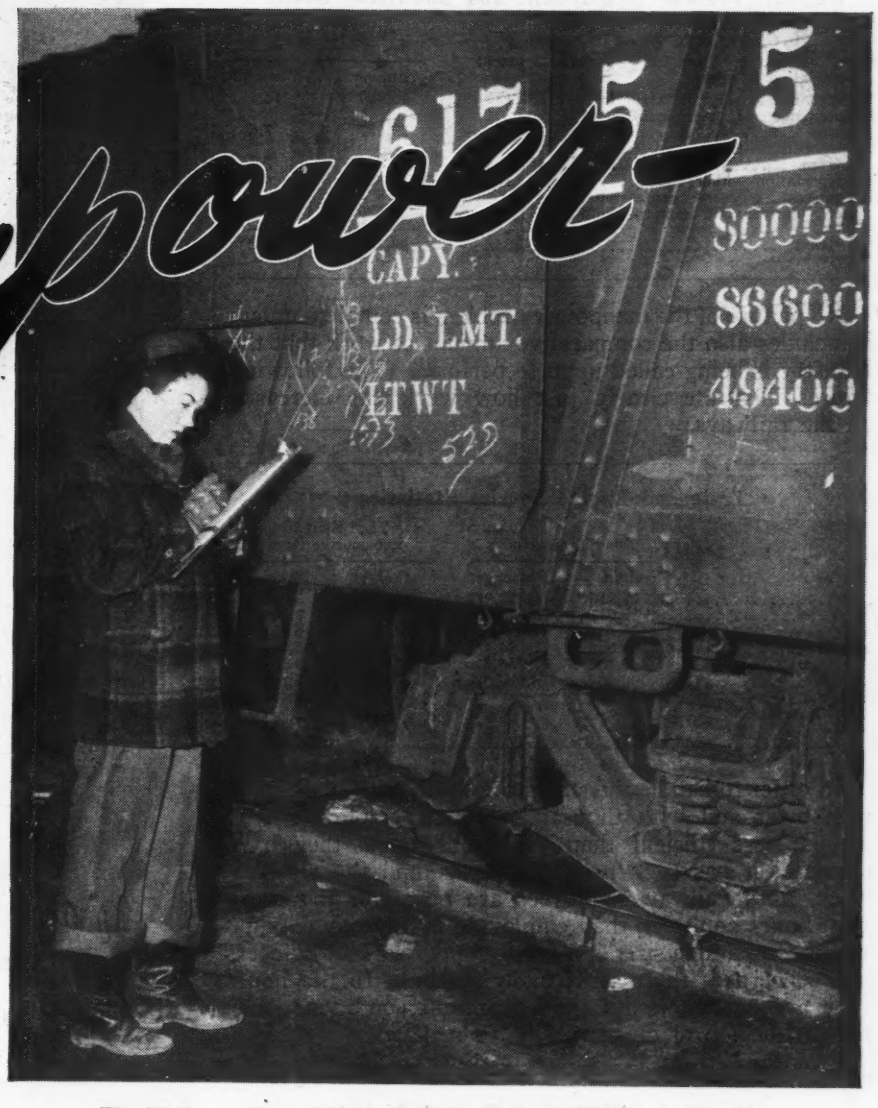
Further, the present disregard of shippers' routing instructions in the interests of efficiency will no longer be possible after the war, if we are to return to the free America with its individual and unregimented enterprise for which we are fighting. Also, while the railways will undoubtedly make every effort to maintain the present splendid relationship with their shippers, it is too much to expect that, at great expense to themselves, the shippers will continue to load cars as heavily, release them as promptly, and uncomplainingly accept what cars are available, as they are doing now.

The recital of the advantages and disadvantages of wartime versus peacetime transportation might be extended almost indefinitely, but the answer would be the same. Plainly, this answer is that the railways cannot expect to handle anything approaching the present traffic under peacetime conditions with their present equipment and facilities. Their magnificent wartime performance will be remembered by the shippers. The mutual acquaintance that has developed in the course of the co-operative efforts of shippers and railway officers to meet the national emergency will be of definite and lasting value. Further, it will require some time after the war ends for the railways' competitors to get back into operation on any large scale. Thus, if the industrial activities of the country postwar are such as to produce anything like the present volume of traffic, the railways will be called upon to do the job.

Suppliers Need Advance Information

Under peacetime conditions, however, they cannot provide such service, unless they begin to plan now for the expansion of rolling stock, the rehabilitation of roadway and signaling facilities and the general modernization of facilities that will be necessary to meet successfully the impact of the potential postwar traffic. Furthermore it should be understood by the railways that the railway supply manufacturers will be faced with conversion problems, and that they may not be able to meet all of the demands of the railways at once unless they are given some idea in advance of what those demands are to be.

Manpower—



The Railways Have Utilized the Services of Women in Many Jobs Previously Held Only by Men

The situation is still tight throughout the country and critical in some areas

ON AN average day in February, 1944, 34 freight trains throughout the country were delayed two hours or more because of shortages of train crews, while 65 switch engines could not operate for lack of one or more yardmen. A shortage of 24 machinists and 5 boilermakers held up necessary engine-house attention for locomotives at one large southern terminal, which in turn caused sufficiently serious congestion for a time on three major railways to result in delays and time-consuming diversions.

Lack of workers for coal piers and switching crews for yard engines in the New York area resulted in side-tracking hundreds of cars of coal. In the same area, one railway was ordered by the O. D. T. to discontinue 68 commuter trains because an acute shortage of train and enginemen was threatening to delay wartime freight. The crews thus relieved were, of course, immediately made available for more vital work.

The shortage in manpower became so serious in Chicago recently that 500 soldiers were called into service as temporary freight handlers to expedite the transfer of important war freight.

Here, as well as elsewhere, general office employees have been working extra hours as freight handlers to relieve freight-house congestion.

A northwestern road experienced 62 delays, totaling 245 hours, to through freight trains because of insufficient help during the first 10 days of March, and was short 113 switch engine shifts at various points along the line during the month of March for the same reason. A transcontinental line reports the enforced cancellation of three to four yard engine shifts daily in Chicago, and that on one day a few months ago, 11 locomotives, or 50 per cent of the assignment on one division, were tied up awaiting tests and running repairs.

A southeastern line reports 36 trains delayed 216 hours at one terminal in one 8-day period; 15 trains delayed 37 hours in a 5-day period at another terminal; 39 trains delayed 114 hours in a 5-day period at still another terminal. At another terminal, 29 trains were delayed in February, several work trains were canceled for lack of crews, and some important trains had to be run with short crews, while on other trains firemen and switchmen had to be used as brakemen. A large coal-handling line reports 96 trains delayed for crews during the first 10 days of March and 43 switch engine tricks canceled in the same period for the same reason.

These instances might be multiplied almost indefinitely but they suffice to show the seriousness of the situation. During the flu epidemic conditions became crucial, and except for an unusually mild, open winter, highly unfortunate consequences might have resulted. While there is now no prospect of a railway transportation breakdown, the situation is still sufficiently serious to warrant the interest and help of everyone concerned, not only with transportation, but also with the nation's welfare.

On April 1, 1944, there were approximately 300,000 rail transportation employees in the armed forces. This drain, while severe and promising to continue, is not as acute as the loss of employees to other wartime industries. According to official figures compiled by the A. A. R., the following situation existed in March, 1944:

Railway, Present Employment and Additional Needs

Occupational group	Total Employment 3-15-44	Additional Needs 3-25-44	
		Number	Per cent
Maintenance of way and structures	283,435	46,489	16.5
Maintenance of equipment and stores	391,000	29,557	7.6
Transporation—train and engine service	301,985	7,022	2.3
Transportation—other	182,162	8,804	4.8
Executives, officers, professional men, clerical and general help	241,066	2,489	1.0
Total	1,399,848	94,561	6.8

No picture of the manpower problem is complete unless it includes also the comparative amount of work that the industry is being called upon to perform. The following figures illustrate clearly just how work has increased on the railways:

Train and Engine Service Statistics

Year	Road Train-Hours		Yard Switching Locomotive Hours	
	Freight	Passenger	Freight	Passenger
1939	27,117,916	11,052,978	36,657,621	3,210,253
1940	28,931,011	10,940,768	40,312,145	3,321,668
1941	34,442,752	11,097,794	48,759,756	3,492,429
1942	42,265,660	11,994,487	54,968,342	3,843,149
1943	45,449,335	13,350,310	57,467,367	4,374,435
1944 (a)	48,000,000	14,000,000	60,000,000	4,600,000

(a) Forecast

In order to handle the staggering load, with inadequate manpower and with thousands of new employees who are far less efficient than the trained men they have replaced, it has been necessary to expand the working week, until railway employees are now working more man hours per week than employees in any other industry of comparable size. So far as supervisors and officers are concerned, there is virtually no limit to the hours they are putting in for, under present conditions, they are on the job or on call 24 hours a day.

Man-Hours Worked—Railway Industry

Year	Maintenance of Way and Structures	Maintenance of Equipment and Stores	Train and Engine Service	All Occupations
		Aggregate		
1939	471,583,614	627,513,318	473,199,064	2,357,114,234
1940	491,070,269	624,886,199	508,671,576	2,478,712,804
1941	574,545,011	792,203,228	603,064,901	2,837,853,921
1942	659,347,324	892,321,450	724,035,585	3,248,983,846
1943	734,345,037	1,001,477,651	789,801,372	3,613,012,729
		Average Hours Per Employee Per Week		
1939	44.8	45.6	43.3	45.8
1940	45.2	46.0	44.1	46.2
1941	46.6	48.1	46.7	47.8
1942	48.0	48.8	49.3	49.0
1943	51.4	51.6	50.8	51.1

Average Hours Worked Per Employee Per Week—Other Industries

Year	Manufacturing		Iron and Steel	Coal Mining	
	Durables	Nondurables		Anthracite	Bituminous
1939	38.0	37.4	37.2	27.7	27.1
1940	39.3	37.0	38.6	27.2	28.1
1941	42.1	38.9	41.6	28.1	31.1
1942	45.0	40.0	42.8	33.8	32.7
1943	46.6	42.5	46.2	37.4	36.7

These figures show that the manpower needs of the railways are being met largely by present employees working overtime. It is not uncommon for railway men to put in 84 hours work in some weeks. Doubling shifts is a common practice and many railway employees on other than train service are working 10 to 12 hours per day for six or seven days a week.

The railway manpower pinch was felt first on the Pacific Coast. Such roads as the Southern Pacific and the Santa Fe immediately began all-out efforts, at large expense, to recruit new employees. Every possible source of labor supply was investigated and special labor recruiting offices were set up, both on and off the line. Rather rapidly, however, the shortage grew to epidemic proportions, particularly as greater inroads of the draft made themselves felt. Instead of being confined to certain areas, the shortage became nation-wide. To cope with the situation, the railways set up a wide variety of schools for training employees, especially telegraphers, where the need rapidly became especially acute and remains so. Physical standards have been relaxed and age limits removed to the maximum degree consistent with safety, while millions of dollars have been spent in setting up labor procurement offices, in advertising and in other recruiting measures.

Old-Time Yard Men Form the Nucleus of as Many Switch Crews as Possible

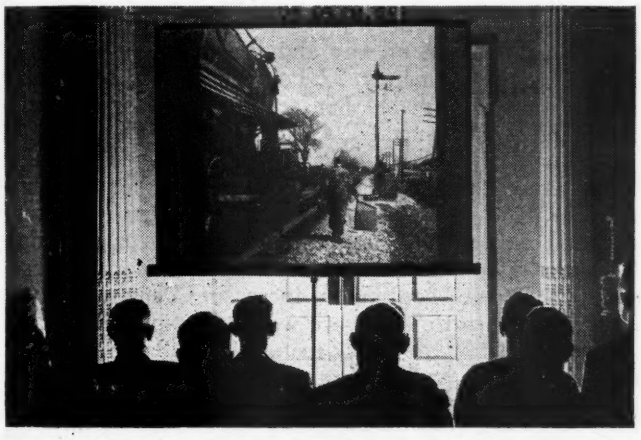
Women have been employed for every job that they can handle, including many tasks that would heretofore not have been considered women's work except in wartime. A number of roads are employing women as trainmen and as switchmen, and one important short line in the South is employing colored women as locomotive firemen. The extent to which women are being used is indicated by the fact that the S. P. now has more than 9,000 women workers on its Pacific Lines alone (13 per cent of its total employment), of whom 4,000 are in non-clerical positions that were formerly occupied exclusively by men.

At various ports the railways have made use of British

seamen during the time when they were awaiting their return voyage home. At the huge Norfolk Navy base an effective arrangement has been worked out for using such U. S. sailors as are available for part-time work. A sizeable number of Navy men have been discovered with railway experience and these men are, of course, used in the capacities with which they are familiar.

Joint Action

Despite all these efforts on the part of individual railways, the situation has grown steadily worse. Large numbers of men have been hired, but there have been even more resignations. On one medium-size eastern railway, for example, 3,543 new employes were hired in 1943, but in that same year there were 3,762 terminations of service, resulting in a net loss for the year of 219 men. Of the terminations, 2,227 were resignations, most of them to go into industries, while 706 employees entered military service. These figures are typical of what was happening in 1943, until it became evident that, despite all efforts and the expenditures of millions of dollars by the individual railways, the job of supplying adequate railway manpower was becoming too big for any one railway.



Sensing this situation, J. Monroe Johnson, then head of the Bureau of Service of the I. C. C., and now director of the O. D. T., began a vigorous and effective campaign late in 1943 to acquaint the public and governmental agencies with the seriousness of the conditions. Since that time, there has been much improvement in the co-operative efforts of the railways and the governmental agencies. Most of the latter are now aware of the situation and are giving effective aid. The labor unions, also, are alert to the gravity of the situation and labor leaders are joining in the general attack on the problem. These measures are beginning to show some results and it appears that the danger is now less acute in some areas than it has been for several months past, although the railways as a whole are still far from being staffed with sufficient manpower.

One of the recent developments is the formation of a Railroad Manpower Mobilization committee, consisting of representatives of the War Manpower Commission, the Railroad Retirement Board, the Office of Defense Transportation and the Office of War Information. The committee also includes representatives of the A. A. R. and of individual railways, as well as executives of the railway labor unions. This committee recently launched a railroad manpower recruiting campaign, with the avowed purpose of "filling 100,000 railroad jobs and keeping them filled."

A considerable amount of publicity has already been issued by this committee, with much more on the way. The campaign is stressing the following facts:

Workers entering railroad transportation join an industry that is vital to the war effort.

Railroading is a real and colorful career, with many opportunities for advancement.

Railroad workers enjoy seniority and promotion rights in a basic industry, with vacations with pay.

Federal-administered retirement and unemployment insurance plans in railroading are among the best offered by any industry.

A wide diversity of jobs, calling for a great variety of skills and training, are available.

This organization is being welded together into a

ABOVE — The Pere Marquette Adopted a Successful Visual Training Plan for New Employees — RIGHT—The Illinois Central Has Trained Many Youths Under Draft Age

smoothly functioning unit. The O. D. T. now has representatives on both the W. P. B.-sponsored Area Production Urgency committees and the W. M. C.-sponsored Area Manpower Priorities committees. These committees have some interlocking functions and, to a certain extent, the same members and they should be a potent force in aiding the railways. Meanwhile, the Railroad Retirement Board is continuing and expanding its activities with regard to the procurement of railway labor. Among other tasks, for example, the field service offices of the Board are now engaged in a campaign to interest high school students in taking railway jobs during their summer vacations. The Office of War Information is co-operating by distributing in post-offices and other prominent places hundreds of thousands of recruiting posters prepared by the A. A. R.

The standard railway labor organizations have joined in the campaign. General chairmen have been instructed to tell each member to consider himself a recruiting aid and to canvass his family, friends and associates for possible applicants for railway employment. The general chairmen are visiting the lodges, explaining the program to division and local chairmen and co-operating with railway officers to make the campaign successful.

Maintenance of Way Needs High

Both relatively and actually, the personnel needs of the railways are greatest in the maintenance of way and structures department. This was true a year ago when labor first became the No. 1 problem of the railways, it has remained true until the present moment, and it is certain to continue as such during the intensive working season that is ahead, in spite of the efforts being, or which may be, taken to alleviate the situation. Today the maintenance forces over the country are confronted with manpower needs in practically all classifications, ranging all the way from 5 to 40 per cent, and in many cases in areas where the need is most vital. This situation prevails in spite of curtailed programs of maintenance in 1943 because of shortages in both labor and materials, and in the face of imperative demands for huge programs of essential work during the current year to keep pace with traffic.

In spite of repeated warnings and pleas by the Office of Defense Transportation and the Association of American Railroads, calling for manpower relief measures for the railways, experienced section and extra gang men today, as well as many other necessary employees in the maintenance of way and structures department, have been given little if any more consideration by Selective Service than employees in non-essential industries, and the drain on this class of railway labor goes on unabated. In fact, the A. A. R. has estimated that alone for 27 Class I roads for which it had compiled figures, 12,776 additional maintenance of way employees will be lost to the armed services in the first six months of 1944. It is true that some general stabilizing influences are now at work, and that certain other factors are tending to offset the losses of experienced maintenance men, but the fact remains that even if these influences are eventually able to offset all such losses quantitatively, they will still fall far short of offsetting them qualitatively.

Early last fall, with roadway and structures operations still at a peak, the railways reported the manpower needs in the ranks of their maintenance of way and structures forces at approximately 52,260 men, with shortages in section and extra gang men alone totaling 46,762. As of the beginning of the current year, with its curtailment of many maintenance activities, particularly in the northern part of the country, these needs were reduced materially, but during March they had already climbed back to a total of more than 52,000, with the prospect that they will go considerably higher as the working season in the North gets in full swing.

What the Needs Were in March

Figures as of that time, the latest that are available, show deficiencies in more than 65 maintenance of way and structures classifications, with the needs in the more important of these groups as follows: Sectionmen, 32,270; extra-gang men, 10,637; bridge and building carpenters, helpers, mechanics, painters and laborers, 3,523; water service mechanics, helpers, laborers and pumpers, 191; and signalmen, assistants, and helpers, 1,450.

As in the past, shortages are reported in all parts of the country, with particularly heavy needs in areas of greatest industrial and farming activity, as well as in sparsely populated areas. Early spring figures indicated a sizeable increase in needs in the New England and Middle Atlantic states, although these same figures showed an appreciable decrease in the unsatisfied demands for unskilled labor in the Far West, in spite of a recent report from one West Coast road placing its shortage of maintenance of way and structures employees at 4,340, or approximately 27 per cent of its total labor requirements. Sizeable but scattered needs were also indicated in the Central West and Gulf Coast areas.

The why of the labor situation among the maintenance forces is well known to those in the railway field—volunteers in the armed services, Selective Service withdrawals, and deflections to other more highly paid occupations in shipbuilding, aviation and other war industries—all in the face of continually increasing demands on the fixed properties to keep pace with a war-peak traffic.

From the start, the track man, as such, below the rank of foreman, has had no protection whatever in his draft status, and still has none. Furthermore, between the time when the War Manpower Commission stabilization order covering war industries went into effect, and the time when railway workers were put under a more or less similar stabilization order in August, 1943, the railways lost heavily of their maintenance of way and structures forces to other industries. Even since the railway labor stabilization order, which requires a railway employee to secure a statement of availability from his road or the Railroad Retirement Board before he can be employed by another railroad or other industry, considerable turnover has continued through a number of loopholes in the order, one of the most important of which is that it provides no restraint on a worker who desires to leave his job for work in agriculture.

Why Track Labor Is So Short

In the early days of the present labor shortage, section gangs were hit less severely than extra gangs, being more stable even in normal times than these latter gangs. However, even the section forces were hit severely last year in many parts of the country, when many gangs were thinned to the point where their activities had to be curtailed largely to patrolling and the most essential work—and that situation has grown progressively worse until today not a few sections are entirely devoid of workers, a condition that obviously cannot be permitted to continue without serious consequences. Numerically, the shortages of the current work season will unques-

tionably be larger among the extra-gang forces required to carry out the heavy essential programs of track maintenance that have been scheduled, but with permanent employees for section work far more difficult to secure than temporary employees, it is certain that the present deficiencies among section forces will be filled only with the greatest difficulty, and, therefore, that the needs of these forces will continue to remain high, if they do not actually increase.

Many Expedients Help Offset Shortages

The relative manpower needs among bridge, building and water service employees are far below those of the track forces, as might be expected. This is in part because of the generally higher age level and seniority among many of these employees, and in part because of the generally higher wage levels in these departments. However, latest tabulations of these needs show widespread shortages over the country—and growing—in some cases more serious than shortages among the track forces, because of the greater difficulty of filling these more skilled and equally essential positions. Many roads see a way out for their track forces, in part at least, in measures being opened to them, but raise with considerable concern the question of where they can expect to fill their needs for carpenters, mechanics, welders, equipment maintainers, iron workers and water service men.

And so is the situation with respect to the signal maintenance forces of the railways—a steadily growing shortage among skilled men, indispensable to the efficiency and safety of train operation. It might not be considered serious that there was a shortage among the signal forces earlier in the year to the number of 1,450, including 539 signalmen, 212 signalmen assistants, 697 signalmen helpers, and 2 signalmen apprentices, in the light of many times that number of signal employees, but considering the indispensable character of these employees, the fact that the indicated needs for men in these classifications has practically doubled during the last year, and the difficulty of training replacements, even if suitable men could be found to train, the situation might well become alarming if it is allowed to become worse.

The many various methods that have been employed by the railways to fill their manpower needs, both by recruitments and by stopping further losses, alone and in co-operation with the War Manpower Commission, the Railroad Retirement Board and the United States Employment Service, are, in general, too well known to require discussion here, except as they embody new developments. Briefly, these methods, some common to the efforts of the roads in the interest of the manpower needs in all of their departments, and others peculiar to their efforts in the specific interests of the maintenance of way and structures department, include the intensive solicitation of manpower by advertising, by their own supervisory forces, by employment agencies, and through the Railroad Retirement Board; the lengthening of the work day beyond eight hours, with work on Sundays, which is now widespread; improved housing and boarding facilities at reduced cost to the men; more intensive programs of constructive work during off-seasons, to provide steady employment; the employment of women for work for which they are adapted physically; the part-time employment of businessmen and college students—especially on week-ends and holidays; the full-time employment of high school boys week-ends, during vacations and on other off-school days; the employment of Indians; the instigation of replacement training programs; the relaxation of normal age limits, both upward and downward; the lowering of physical requirements, within limits; the retention in service of those reaching retirement age, if physically fit; the more widespread and intensive use of power tools and work equipment of all kinds; requests for the deferment of their most important, or key, men from military service; and, in a few instances, the employment of American-born Italian and Japanese internees, released from internment centers with the approval of the government.

Welcome Visitors from Mexico

While all of these various means are having beneficial effects in adding productive man-hours to the maintenance forces, and several of them have assumed considerable importance, a factor that gives promise of being more productive of over-all results than any of them is the present large-scale importation of Mexican nationals for work on the railways under a plan inaugurated a little more than a year ago, when, following negotiations between the State Department and Mexico, 6,000 Mexicans were admitted to the country for work on the railroads of the Pacific Coast and Southwest. Subsequently, about the middle of June, 1943, the "ceiling" on Mexican entries for railway work was raised to 20,000,

The Importation of Mexicans of Which There Are Now About 30,000 in the Country for Railway Work, Is Giving a Big Lift to the Track Forces on a Number of Roads—The Group Shown Herewith Is Working On the Santa Fe

High School Boys, Working on the Track Week-Ends and During Their Vacation Periods, Proved So Helpful Last Year, That a Concerted Effort Is Being Made to Increase Their Numbers This Year

and in March, 1944, after further urging on the part of the railways, and further negotiations on the part of the State departments of the two countries, it was raised still further to 40,000, where it now stands.

Taking advantage of the relief that is certain in the employment of these importees, road after road has availed itself of the opportunity to hire them, including a number in the East which have never employed Mexicans before. To date, railroad requests for Mexican laborers, all of which have been made to the War Manpower Commission, which is administering negotiations with the railways, have exceeded 86,000, and already allocations have been made to 29 different roads, almost to the limit of the importation quota. After allocation to the railroads, recruiting and processing of the Mexicans in Mexico, supervision over their transportation to the United States, the handling of subsequent negotiations with the railways, and the keeping of records, are handled by the Railroad Retirement Board. On May 1, approximately 30,000 of the Mexican laborers are in the country, working on lines as far east as the Boston & Maine, and further large movements of other allocated Mexicans are under way, detachments having left points of entry at the border on May 17 and 20.

Not all of the Mexicans being brought into the country are for employment in track work, a number of roads assigning them to work in and about their storehouses and mechanical shops. To date, the number employed in these other departments has been relatively small, however, amounting to a total of only about 3,300.

Adept in Use of Mechanical Equipment

In general, the Mexicans being brought into the country are not large in stature and, individually, do not have the potential strength of some of the native labor ordinarily found in track gangs. However, those roads that have employed Mexicans to the largest extent and for the longest periods of time, have found them willing workers, who organize readily and work smoothly in large gangs. They have also found these men intensely interested and adept in the use of mechanical equipment, which is particularly fortunate because of the large place which this equipment is taking in itself in increasing production far beyond that which would be possible by hand methods.

Supplementing the employment of Mexican nationals, but certain to be only a minor factor in comparison with them, is the plan announced by the War Manpower Commission on April 14, for the recruitment of 2,000 unskilled Puerto Ricans for maintenance work on the railways. This group will be the first large group of unskilled laborers to be imported from Puerto Rico to aid in solving continental manpower problems, although about 1,000 Puerto Ricans, mostly skilled workmen, came to the United States during 1943.

Many Roads to Employ High School Boys

Second only to the help which the maintenance forces expect to gain through the employment of Mexicans during the coming season is that which they expect to get from high school boys between the ages of 16 and 18, employed during their summer vacation period and on week-ends and holidays both before and following this period. Although the employment of boys was started early last year with much skepticism on the part of many maintenance officers, it gained impetus rapidly during the year, until boys were being employed widely over the roads of the country and, at the peak of the summer season, reached a total number estimated at approximately 10,000. One road alone last year had more than 1300 minors on its maintenance payrools during the summer months, and found the experiment so productive of effective work that it plans to employ at least an equal number of boys during the current season.

To enlarge the possibilities for constructive maintenance work from this source of labor during the present year, the Railroad Retirement Board has instigated a promotional and educational program which is certain to produce effective results. Under this program, which is being conducted by its representatives in each of its nine district offices, it is contacting railway officers and state and local school authorities to apprise them of the plan and to solicit their interest in it, and is also seeking the co-operation of the regional, state and area directors of the War Manpower Commission and the local officers of the United States Employment Service. These efforts are being supplemented by poster and bulletin campaigns which reach down into the high schools themselves, and by the use of motion pictures, which show highlights of the work, housing and social activities of groups of boys employed on the track during the 1943 season.

Based upon the experience in the use of boys last year, the Retirement Board's program sets a high standard for their employment during the current year. Among other things, this calls for consideration to the following factors: The hiring of only non-farm boys; segregation

of the boys from older men on the job insofar as possible; the provision of clean, sanitary bunk cars for the use of the boys alone, with provision for shower baths and electric lighting; the establishment of a "monitor" plan, providing for the supervision of the boys during their off-duty hours by a responsible, experienced monitor, such as an athletic coach or school teacher, who is to be placed on the payroll of the railroad; reasonable boarding charges; careful attention to the dietary requirements and food preferences of the boys; work locations where the boys can indulge safely in off-time recreation, and preferably outside of congested terminal areas; the employment of boys within 100 to 150 miles of their homes to avoid homesickness and turnover; daily bus or similar transportation to and from home for those working within a radius of 20 to 25 miles from their home locality; the furnishing of athletic equipment for evening and Sunday recreation; and the avoidance, insofar as possible, of heavy or dangerous work.

Under this program, which includes many features demonstrated as practicable and desirable in the experience of a number of roads last year, the Retirement Board expects enthusiastic endorsement by the railroads, educational authorities and parents, and widespread acceptance of railroad jobs by boys over the country. In consequence, it sees, as was demonstrated as possible last year, several million constructive hours of work for the railways from the boys during the current season, in bridge, building and water service operations as well as on the track, while at the same time affording the boys healthful, pleasant and constructive occupation during their school-free time.

Number of Women Trackworkers Increases

With so many maintenance of way and structures tasks of a nature beyond the physical strength or endurance of women, it was never expected that large-scale manpower relief could be expected from this source. As a matter of fact, there are many among the supervisory forces of the railways who, in spite of the experience of other supervisory officers to the contrary, refuse to be convinced that women can be employed effectively in maintenance work. The fact remains, however, that, according to reports by a number of roads, women are being employed in increasing numbers in a considerable range of maintenance operations. This work includes cleaning and general policing work; the distribution of bolts, spikes, tie plates and angle bars ahead of rail gangs; the re-distribution of excess ballast unloaded in ballasting operations; the surfacing and general maintenance of yard tracks; and the cribbing out of cinder-ballasted track ahead of reballasting operations with other materials. In a few instances, women gangs have also been employed in tie renewal work in conjunction with men, in territories of cinder, chatts or screenings ballast, the men renewing the ties and the women following up, shovel-tamping the ties and redressing the ballast.

As might be expected in the light of the growing evidence that women can be employed productively in a number of maintenance of way and structures operations, employment figures show an increasing trend toward their use, limited though that may be. Whereas in January, 1943, 745 women were employed in maintenance of way and structures operations, other than clerical and as crossing watchmen, by Class I railroads, this number had increased to 3,027 in October of that year, the peak of the work season, and still averaged 2,402 in January, 1944, the last month for which figures are available, when maintenance operations were at their lowest level due to winter conditions. Analyzing this winter drop in the employment of women, it is interesting to note that it involved 689 women classified as sectionmen, or 3.6 per cent of the women so employed, which was not inconsistent with the drop that occurred in the sectionmen classification as a whole, which amounted to 2.9 per cent. Furthermore, the January figure included 78 more women classified as extra-gang workers than the October figure.

Work Equipment Proving Invaluable

In January, the 2,402 women employed in maintenance of way and structures operations, which represented 1.04 per cent of the total of 231,360 maintenance of way and structures employees on the payrolls during that month, were classified as follows: Foremen—1; assistant foremen—1; sectionmen—1,185; extra-gang men—1,028; maintenance of way laborers other than track and roadway—80; maintenance of way and structures helpers—61; bridge and building carpenters—4; bridge and building painters—6; portable steam equipment operator helpers—4; pumping equipment operators—6; signalmen and signal maintainer helpers—22; and assistant signalmen and assistant signal maintainers—4. What these figures will be at the height of the 1944 working season must be left to conjecture, but in view of the more critical nature of the manpower shortage that promises to prevail, it seems certain that they will surpass by a considerable margin the top figures of the 1943 season.

No discussion of the manpower problems of the maintenance of way and structures forces would be complete without reference to the outstanding offsetting influence on these problems that is being played by the widespread and increasing use that is being made of power tools and work equipment in carrying out roadway and structures maintenance. No complete list of the work equipment being employed on the railways as a whole is available, but it is estimated that the total railway investment in such equipment at the present time is at least $120,000,000. During the last six years alone, the railways purchased more than 34,000 units, at an estimated cost of approximately $50,600,000, this including the record purchases of 8,500 units in 1943, at a cost of about $12,300,000.

The degree to which the railways have increased production through the use of their work equipment can be demonstrated readily by analyzing the operations of almost any one of their power tools or machines, even though the efficiency of many of these units has decreased materially because of the smaller organizations made necessary by labor conditions during the last year or two. In fact, it is estimated conservatively that without their power equipment, the railways would have required at least 70,000 additional full-time maintenance of way and structures employees in 1943, and would require a still larger number to carry out their larger maintenance programs planned for 1944.

Efficiency of Forces Down Materially

That maintenance officers recognize this great value in their equipment is seen both in the intensive manner in which it is being used and maintained, and in the fact that, topping peak purchases of this equipment during recent years, they are planning to continue to add further to their present equipment as fast as conditions permit—their contemplated purchases in 1944 including approximately 10,000 units, at a cost of about $14,000,000.

Taking advantage of all of the added sources of employment discussed in the foregoing, it is more than likely

that the total number of maintenance of way and structures employees on the railways during the current year will surpass in number (and hours worked) the increased numbers of the last few years—but this does not tell the entire story. To gain a more accurate picture of the actual results that can be expected with this larger force, one must take into consideration the smaller output of labor per man-hour due to the inexperience of thousands of these new employees, and the greater interference of traffic with work operations.

On the basis of past experience, it is to be expected that the man-hour output of the newer employees will be only 50 to 75 per cent of that obtained normally from experienced section and extra-gang labor. Furthermore, it can be expected that much of the labor that will become available will be unequally distributed along individual lines, ranging from small surpluses in some areas to critical shortages in others. Unquestionably too, this situation will be complicated further by the fact that much of the labor that becomes available will refuse to live in permanent camps and camp cars, where needed, insisting on living at home—a situation that will complicate, if not make impossible, as occurred in many localities last year, the building up of large, well-organized and well-equipped division or district gangs to carry out major track operations.

All of these factors will affect the labor needs of the maintenance forces during 1944, which indicates that, regardless of the total number of new inexperienced workers that can be expected to be added to the payrolls, the productive capacity of the forces as a whole will still be far short of actual requirements.

Mechanical Department Feels the Pinch

As in other departments, equipment maintenance work is seriously restricted and retarded by shortages of manpower from causes associated directly and indirectly with the nation's war effort. Numerically, the greatest need is for unskilled labor, but experienced craftsmen and helpers are only slightly less in demand. Mechanical manpower shortages reported as of April 1 are somewhat greater than on March 1 and considerably larger than a year ago. They are most critical on the West Coast, less serious in the Middle West and Southwest and tight only in spots in the Northeast and Southeast.

Additional manpower requirements for various classes of mechanical department work are shown in the accompanying table, which is based on figures submitted by individual railroads to the U. S. Railroad Retirement Board. Increased needs are indicated in practically all categories except apprentices and some classes of helpers. The greatest deficiency, as stated, is in shop laborers, a shortage of 5,781 on April 1 comparing with 4,650 on March 1 and 2,406 on June 29 last year. The next greatest need, based on the number of men required, is for machinists, then for car repair men, machinist helpers, boilermakers, etc.

Roughly speaking and considering the nation as a whole, there is a shortage of at least ten per cent in railway employees engaged in maintenance-of-equipment work. In some instances, this has actually delayed individual car and train movements, but evidence that it has not yet crippled railway operations seriously is afforded by the records of constantly increasing car-miles and ton-miles of traffic handled. The fact that mechanical department labor shortages have been held to the amounts indicated is due for the most part to measures instituted by the railroads over a year ago to (1) develop special training programs for supervision as well as shop employees, (2) institute campaigns against absenteeism, (3) transfer repair work from road to road, (4) change the age limits for employment, (5) re-employ pensioners in certain instances, (6) employ women to an increasing extent, (7) employ Mexican labor.

Typical Instances of Labor Shortages

The following instances of labor shortages primarily in mechanical department work are selected from reports made by individual carriers in response to a questionnaire sent out by *Railway Age*. In general, the figures given are based on conditions as of April 1.

One Pacific Coast railroad, for example, in an especially critical area as regards labor conditions, is short 2,916 maintenance-of-equipment and stores employees, or 13 per cent of the total, this number including 300 machinists. On this road, more than 13 per cent of its equipment maintenance forces are women who are employed for such work as steam-hammer operators, rivet heaters, fire-lighters, turntable operators, operators of bolt-cutting machines, drill presses, etc. Women are also being used on this road as locomotive wipers, enginehouse clerks, blacksmith helpers, stationary firemen, journal-box packers and sandhouse attendants.

A railroad in the Central West reports that it has no particular difficulty in filling mechanical positions at places between Denver and Pueblo, Colo., but is extremely short of enginehouse and shop labor in the mountains.

A railroad which operates primarily in the Northwest is short of common labor and all crafts in enginehouses and shops. This results in an accumulation of road locomotives that must be held for tests and running repairs. For example, eleven large Mikado locomotives were tied up for tests and running repairs on one principal division in one day.

A railroad in the Southwest reports that its major problem has been obtaining enginehouse labor, firebuilders, fire-knockers, boiler washers, cinder and coal handlers at the larger points.

On a railroad in the Central East, the shortage of mechanics has necessitated upgrading men too fast, with the result that the quality of the work has deteriorated and it takes more hours to repair a locomotive than it did before the war.

Overtime Affords Relief to One Road

A railroad in the Pocahontas region reports an acute shortage of enginehouse mechanics, with the result that, for a time, it was almost a daily occurrence for trains to be held up while repairing locomotives to pull them.

One road in New England is short 154 men in the mechanical department, but reports that the judicious use of overtime has permitted it to keep up repairs to locomotives and cars.

On a Southern railroad, the shortage of shop mechanics and helpers has reduced the output of the shops materially, despite the fact that, in efforts to overcome conditions created by the shortage of men, the work week in the larger shops has been extended from 48 hours to 54 hours, and later to 58 hours. While this increase in work hours

furnished a measure of relief, it has not resulted in a sufficient increase in output of the shops to meet entirely the present heavy demands of the service.

Need for Increased Equipment Maintenance

The shortage of men in enginehouse forces has affected the efficiency of the locomotives in service by lengthening the time required to turn the locomotives after service trips. This is illustrated by the record of delays to trains waiting for locomotives during the two months prior to April 1.

An exceptionally concise analysis of mechanical department labor conditions and requirements, up to and including the first two months of 1944, was developed by the Association of American Railroads in conjunction with the Office of Defense Transportation and submitted to the War Manpower Commission and the Selective Service System. As indicated in this report, one of the best indications of the increased demand for equipment maintenance is the miles run by cars and locomotives. Total car-miles increased 53 per cent between 1939 and 1942 and total road locomotive-miles increased 33.5 per cent during the same period, the average of the two, on an equal weighting basis, being 43 per cent. During the same period, only 33 per cent more workers were employed in maintaining equipment.

Further increases of 6.8 per cent in car-miles and 7.8 per cent in locomotive-miles, between 1942 and 1943, averaged 7.3 per cent. Employment increased only 6.4 per cent, necessitating a further increase in average hours of work, from 48.8 hours per week in 1942 to 51.0 hours per week in 1943.

As of the first of this year, the report showed that the railroads had 374,000 maintenance-of-equipment em-

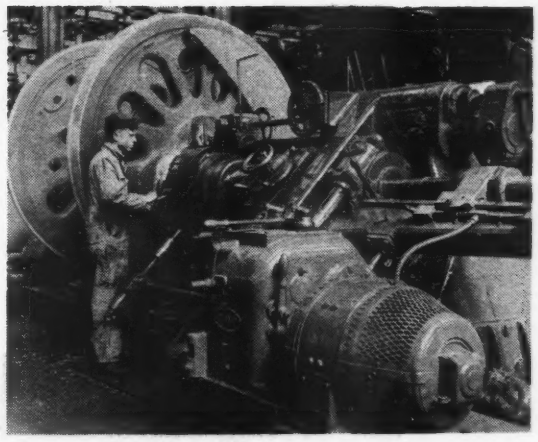
Manpower Shortages in Key Mechanical Department Jobs*

Occupation	Apr. 1, 1944	March 1, 1944	June 29, 1943
Apprentices	1,032	1,173	1,263
Blacksmiths	177	160	127
Blacksmith helper	123	134	75
Boilermaker	1,186	1,058	491
Boilermaker helper	785	682	211
Car cleaner	604	582	261
Car man	3,088	2,558	1,721
Car man helper	1,690	1,552	543
Coach cleaner	697	508	619
Laborer shop	5,781	4,650	2,406
Machinist	3,842	3,451	2,219
Machinist helper	1,435	1,444	380
Painter	474	371	317
Patternmaker	20	19	6
Pipefitter	262	237	116
Sheetmetal worker	307	227	187
Upholsterer	75	55	37
Welder	145	124	43

* Figures compiled by the U. S. Railroad Retirement Board

ployees, but were approximately 30,000 employees, or 8 per cent, short of their needs. Notwithstanding this shortage, plans called for the drafting of 20,800 maintenance-of-equipment employees in the first half of 1944, compared with actual inductions of 10,300 during the preceding six months. A table covering 10 labor classifications on 27 Class I carriers, included in this report, indicated that at the beginning of this year, a total of 10,020 workers were needed in these 10 classifications, 39,376 were already in the armed forces, 5,576 were inducted in the last-half of 1943 and 11,158 were scheduled for call in the first half of 1944.

The lack of adequate maintenance-of-equipment forces was and still is unquestionably slowing down repair work on cars and locomotives. Some roads are experiencing considerable difficulty in turning locomotives promptly, with the result that trains ready to move are being held



During 1943 There Has Been a Shortage of the Type of Skilled Craftsmen Essential in Maintaining Locomotives and Cars

awaiting power. Trains are also being delayed owing to inability of the railroads to inspect and repair freight cars promptly with the forces now available.

The extent to which the railroads are losing ground in their maintenance-of-equipment work is indicated by statistics showing the miles run out of locomotives during the month and the miles restored through repairs. For the last four months of 1943, the miles run out exceeded those restored by the following percentages: September, 3.4 per cent; October, 3.6 per cent; November, 4.7 per cent; December, 11.1 per cent (preliminary figure).

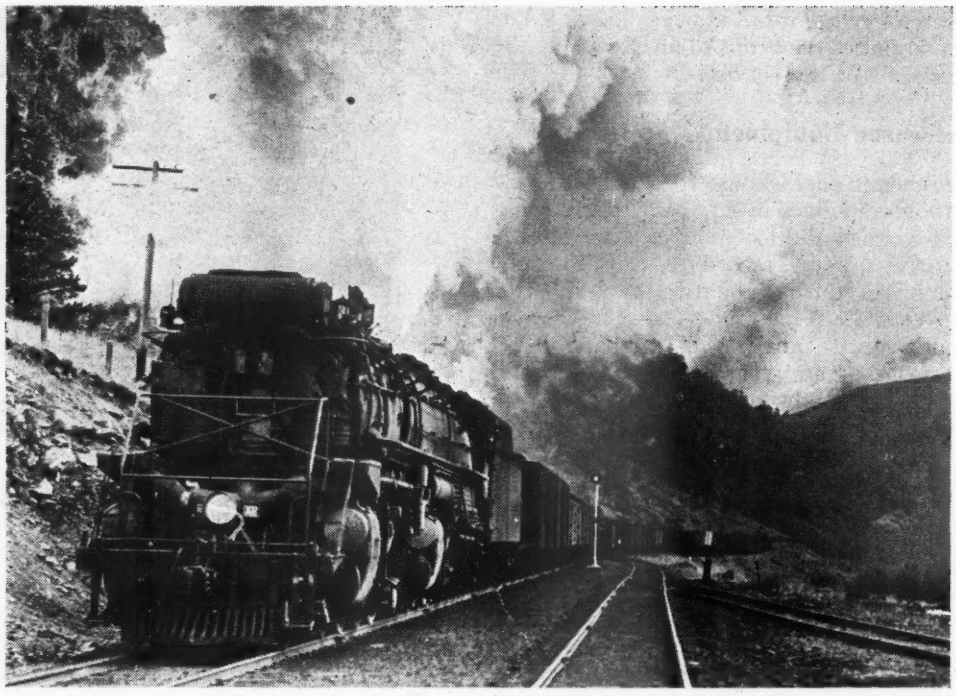
Maintenance-of-equipment employees averaged 51 hours of work a week in 1943, compared with 48.8 hours in 1942 and 45.6 hours in 1939. In general, the workweek for such employees is now greater than in practically any other industry in the country, with a few exceptions.

The use of Mexican labor is proving helpful in mechanical department work on a number of railroads. About 2,500 of the Mexicans who have been brought into the country have been placed in or transferred to shops at various times. About 500 were also placed in stores departments immediately on their arrival during January, February and March, 1944, while those transferred from track to store labor were not reported.

A considerable number of the Mexicans imported last year for specific use on track, were moved into shop positions during the winter months. With the opening up of track programs this spring, some of these roads moved the men back into the track forces, although in certain cases objections were raised, owing to the lower rate paid track men. To the fullest extent practicable, Mexicans who have demonstrated special adaptability have been retained in mechanical department positions, especially when this has served as an inducement for them to renew their six-month contracts.

Railways Not "Resting on Oars"

In view of the serious situation that now confronts them, the individual railways realize almost universally that they cannot afford to relax in the efforts they have been making so far. As an integral part of the current campaign, they are continuing and expanding their own efforts in the way of labor procurement, because, while welcoming all the assistance that can be given them, they are keenly aware that they must still help themselves.



Despite Heavy Traffic, Railroads Have Held Down Train-Miles for Efficient Operation

All Records Are Broken Again

Year's operations characterized by remarkable utilization of the available equipment

THE recital of railway wartime performance continues in the same refrain—records for traffic volume and the ability to handle it are broken day after day as the flow of traffic continues at flood levels. The refrain does not grow monotonous, however, for the job of handling the nation's wartime transportation is the biggest railways have ever been called upon to do and the most important for the welfare of this country.

No Slackening of Volume

Last year freight was handled on a completely unprecedented scale and the figures so far this year show no signs of slackening volume. In fact, the volume of freight traffic handled by the Class I railroads in March, 1944, the last month for which the figures are available at the time this article is written, exceeded that for the same month of last year by two per cent, approximating 62,500,000,000 ton-miles in this month. Likewise, in the first three months of 1944 the Class I railroads produced approximately 7 percent more revenue ton-miles than in the same period of 1943, 38 percent more than in the same period of 1942, and 192 percent more than in the first three months of 1939. These figures do indicate that the peak may soon be reached for the rate of increase is decreasing, as is shown by the following ton-mile statistics for the first three months of 1944 and 1943:

	1944	1943	Per Cent Increase
January	60,487,994,000	55,134,789,000	9.7
February	a59,400,000,000	54,419,933,000	9.2
March	b62,500,000,000	61,220,266,000	2.1
3 Months' Total	182,387,994,000	170,774,988,000	6.8

a Revised estimate—also a 29-day month
b Preliminary estimate

Reflecting this leveling off in traffic, the equipment situation is growing somewhat less acute. On the other hand, the problem of securing sufficient manpower to keep existing equipment in repair and to operate the trains is steadily becoming more critical.

Class I railroads put 28,708 freight cars and 773 locomotives in service in 1943. This was the smallest number of cars installed since 1940, but the largest number of locomotives since 1930. By way of contrast, the railroads put 63,009 new freight cars and 712 new locomotives in service in 1942. Of the new freight cars installed in the last calendar year, 1,923 were plain box, 356 were automobile, 8,792 were gondola, 15,137 were hopper, 2,446 were flat cars, 4 were refrigerator cars, 3 were stock cars and 47 were miscellaneous cars. The new locomotives installed in 1943 included 429 steam, 15 electric, and 329 Diesel, compared with 308 steam and 404 electric and Diesel in 1942.

On April 1, 1944, Class I railways had 36,727 new freight cars on order, as contrasted with 20,712 on the same date last year. The new freight cars on order on April 1 of this year included 15,815 hopper, 4,230 gondola, 800 flat, 11,386 box, 3,150 automobile box, 1,146 refrigerator, and 200 stock cars.

The railways also had 755 locomotives on order on April 1 of this year including 243 steam, 2 electric and 510 Diesel locomotives; this compared with 586 on the

ame date in 1943, divided between 392 steam, 12 electric and 182 Diesel locomotives.

Class I railroads put 7,838 new freight cars in service in the first three months of this year, including 4,494 hopper, 524 gondola, 715 flat, 358 automobile box, 1,693 plain box, and 54 refrigerator freight cars; this total compared with 4,657 freight cars installed in the same period last year. They also put 261 locomotives in service in the first quarter of 1944, of which 112 were steam, 1 electric and 148 Diesel, as compared with 159 locomotives installed in the first three months of 1943, of which 125 were steam, 6 electric and 28 Diesel.

Handling the Record Traffic

The manner in which the record movement of oil, the tremendous military traffic and the bumper wheat harvest were handled is dealt with in later articles. The story of the manner in which the traffic as a whole was handled revolves largely about the utilization of cars and locomotives. Here remarkable records were set up, although the dwindling manpower available for servicing and repairing locomotives has been particularly noticeable in the enginehouses in the last few months and there have been increasing instances of delays to locomotives attributable to this difficulty. This subject is also dealt with in detail elsewhere in this issue.

The campaign initiated by the O. D. T. to bring about 10 percent improvement in freight car utilization to meet the traffic needs has met with considerable success. The late Joseph B. Eastman inaugurated the campaign by sending personal letters to the presidents of 1,300 large industrial concerns, soliciting their co-operation. Further letters were sent to the chairmen of the 200 car efficiency committees of the shippers' advisory boards and to the 200 members of the O. D. T. transportation advisory committees. A letter from Mr. Eastman, accompanied by a letter from Eric Johnston, president of the U. S. Chamber of Commerce, was also sent to the president of each of the 1,450 local chambers of commerce throughout the country. Meanwhile, the subject of greater car utilization was receiving extensive study and action by the railways themselves.

Open Top Cars

The transportation demands arising out of the war program continue to run heavily to open top equipment. The increased production of coal, iron ore, and iron and steel products, the rising volume of finished war armament, the greatly enlarged movement of military impedimenta and the longer hauls of much of this traffic all add to the heavy demand for gondola, hopper and flat cars.

The following tabulations are indicative of the job of the open top car, comparing 1943 accomplishments with those for the year 1938:

Supply of Gondola and Hopper Cars

Ownership	Sept. 1, 1943	Sept. 1, 1938	Per Cent Change
Ownership	843,096	800,212	5.4 per cent increase
Bad Order	23,816	136,547	82.6 per cent decrease
Serviceable	819,280	663,665	23.4 per cent increase
Average Capacity.	56.35 tons	55.65 tons	1.3 per cent increase

All-Rail Movement of Coal That Formerly Moved Part Way by Water Continues Heavy

Revenue Carloads of Principal Commodities Moving in Open Top Cars

Commodity	Year 1943	Year 1938	Increase
Coal	8,493,154	5,540,739	2,952,415
Coke	750,768	274,639	476,129
Ore	2,817,152	845,965	1,971,187
Miscellaneous	7,830,160	4,810,312	3,019,848

NOTE: Miscellaneous loading includes iron and steel, sand, gravel, and stone; finished war armament; military impedimenta, etc. Flat cars are in especially heavy demand for the loading of finished war armament and military impedimenta.

These increases in loadings in themselves constituted a heavy burden on the available supply of gondola, hopper, and flat cars, but in addition there has been a great increase in the length of haul, brought about by a two-ocean war and the impacts of traffic which previously had been handled by water and rail-water service. This is shown by the following figures:

Average Haul Per Ton of All Traffic

Year 1943	Year 1938	Increase %
479 Miles (est.)	337.29	151.71

Average Tons Per Carload

	Year 1943 (est.)	Year 1938	Increase %
A. Coal	56.3	51.5	4.8
B. Coal	56.4	54.1	2.3
Coke	36.	35.	1
Ore	61.2	60.4	0.8
All Carload Traffic	41.3	35.8	5.5

With an increase of 155,615 (23.4 percent) in the number of serviceable gondola and hopper cars on September 1, 1943, compared with the corresponding period of 1938, the railroads handled approximately 83 percent more carloads of coal, coke and ore in 1943 than in 1938, in addition to a heavy increase in miscellaneous loadings requiring gondola and hopper cars.

New England Coal Delivery

Aside from the demand for transportation of an all-time peak production of 589,000,000 tons of bituminous coal in 1943, the delivery of coal to New England provides an example of the still further increase in requirements for coal cars. The New England states do not produce any coal; therefore they must receive their supply of this essential commodity from other areas. Prior to the war, the bulk of the bituminous coal burned in New England originated in southern West Virginia and moved by rail to the coal piers at Hampton Roads, and thence by water. This was an ideal setup for the efficient use of coal cars. However, owing to the exigencies of the war, it was necessary to re-route a great volume of this coal via rail to New York district piers, beyond which it was moved to destination by water. It was also necessary to handle a large increase in this tonnage all-rail to New England destinations. The effect of this movement on car supply is shown by the fact that the turnaround time on cars from Southern West Virginia to New York piers and all-rail to New England is approximately 50 percent longer than to Hampton Roads.

The following tabulation demonstrates the tremendous change in this movement of coal within the past two years.

Bituminous Coal Moved to New England

	Year 1943 (Short Tons)	Year 1941 (Short Tons)	Change
Via Hampton Roads	6,999,576	12,960,451	5,960,875 Decrease
Via New York District Piers	5,625,000	468,047	5,156,953 Increase
All-Rail	10,555,875	7,035,985	3,519,890 Increase
Total	23,180,450	20,464,483	2,715,967 Increase

Many other new movements of coal and other commodities with long hauls have developed that require open top cars. The demands for this equipment have been continuously heavy in all sections of the United States. Further, substantial assistance has been given the two principal Canadian roads to enable them to meet increased obligations.

Reflecting the outlook for 1944, the Solid Fuels Administrator for War has set a goal for the production of more than 600,000,000 tons of bituminous coal, as compared with the record production of 589,000,000 tons in 1943, plus a substantial increase in anthractie coal, in order to meet the Nation's requirements. The War Production Board has also set a tentative goal of 90,000,000 tons of iron ore to be shipped from the Upper Lake ports, an increase of 7 per cent over actual shipments from those ports in 1943.

The demands for gondola and hopper cars for this service will, therefore, continue extremely heavy and there will be no general surplus of these types of cars. Flat cars will likewise continue in heavy demand for the movement of certain items of finished war armament and military impedimenta.

Stock Cars

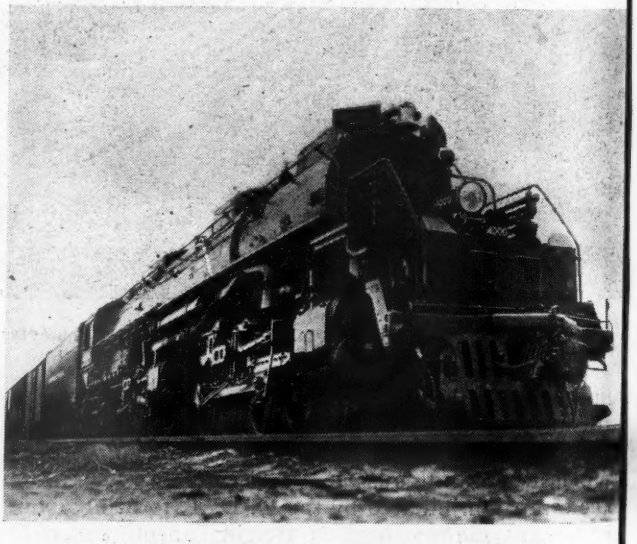
Only through the close co-operation of the Office of Defense Transportation, the Interstate Commerce Commission, the Solid Fuels Administration, the War Production Board, the Army, the Navy, and other governmental agencies, plus that of shippers, receivers, the shippers' advisory boards, railroad managements, and railroad personnel was it possible for the open top equipment to do the big job that it did in 1943. This type of understanding and assistance will be required even more to meet satisfactorily the demands of 1944.

Owing to the heavy increase in livestock production, carloadings of live stock increased 92,849 during 1943 as compared with 1942, and were the heaviest since 1934, when the railroads were called on to transport an unprecedented amount of livestock because of drought conditions. While the stock car ownership increased only 68 cars last year, this increased movement was handled without delay and to the entire satisfaction of the producers, packers and interested governmental agencies.

Refrigerator Cars

As anticipated, there was a greatly increased demand for refrigerator cars during 1943, and the increase has continued into 1944. With the estimated increase in acreage of food crops, there will be a further continuing stringency during the present year, particularly during the fall and winter months.

The predicted shortage in refrigerator cars did not materialize during 1943 and the first quarter of 1944. While there were sporadic tight situations of short dura-



Huge, Efficient Power Has Aided in Producing Outstanding Locomotive Utilization

tions, there was no serious shortage of refrigerator car in any producing area. This anticipated shortage wa averted by faster turnaround of refrigerator cars, heavie loading, and a decrease in empty car-miles due to th common use of refrigerator cars, without regard to own ership and previous assignment. The centralized dis tribution of refrigerator cars has gone a long way t

eliminate cross hauling and duplication of distribution by competing car companies.

The following tabulation is indicative of the job the refrigerator car has been doing during the war emergency:

Year	Refrigerator Car Loadings	Refrigerator Car Ownership
1941	1,663,490	142,169
1942	1,846,347	143,078
1943	1,910,754	141,867

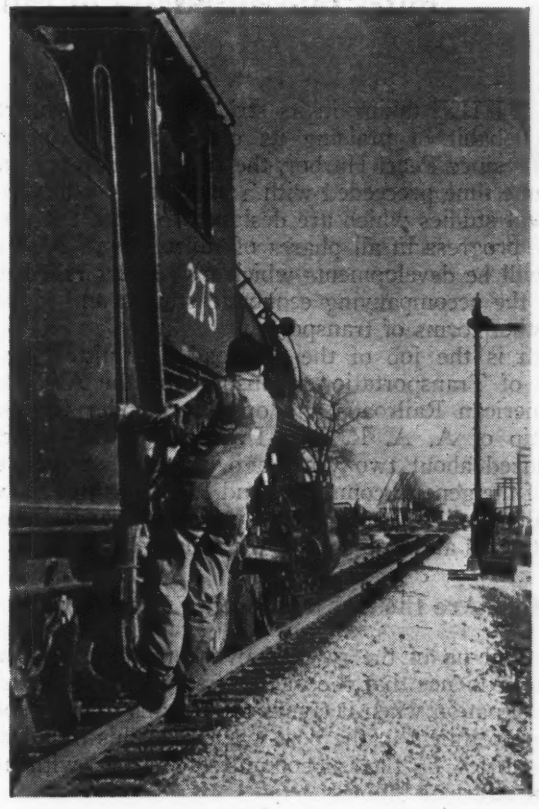
The ownership of refrigerator cars totaled 140,195 on January 1, 1944. Yet refrigerator car loadings for the months of January and February, 1944, aggregated 329,703, compared with 293,186 during the same period in 1943, an increase of 12.4 per cent. For the entire year 1944 it is estimated that loadings will increase 7.8 per cent, as compared with 1943. It is anticipated that heavy increases will occur during the first four months of the year, followed by the customary slack during the month of May, after which it is anticipated there will be a substantial increase in June and relatively heavy loading during the balance of the year. It is reasonable to expect that there will be some tight periods, but, on the whole, the refrigerator car situation does not appear too dark for the balance of this year.

The increased use of empty westbound refrigerator cars for the movement to the western states of various manufactured commodities that have heretofore generally been shipped in box cars has resulted in a substantial saving in transportation. The decision to permit the substitution of refrigerator cars for box cars in the westbound movement was taken to increase the use of refrigerator cars which normally move empty. To make this decision effective, an I. C. C. service order was issued on January 25, 1943, which permitted the loading of refrigerator cars with box car freight, and the loading under this order, together with the co-operation of meat packers and others in loading perishable products in standard refrigerator cars, resulted in the increased loading of 65,741 refrigerator cars to the West Coast during 1943, as compared with 1942. This represents a real saving in transportation, especially to the heavily burdened western roads; it also released a large number of box cars for loading in other sections of the country at a time when they were badly needed.

Traffic to Mexico

Because of an increasing volume of traffic going to Mexico and the failure to return a corresponding number of cars of United States ownership from that republic, it seemed evident early in 1943 that measures would have to be taken to bring about equalization. Accordingly, on January 30, the Interstate Commerce Commission issued Service Order No. 107 which charged the Car Service division of the Association of American Railroads with the responsibility of so regulating traffic to Mexico by embargo control as to bring about a restriction in the southbound movement to a basis not in excess of the number of cars being returned northbound.

Measures taken to accomplish this objective included the issuance of specific embargoes, subject to permit, on grain, and later on all traffic. While the uncertainties as to the magnitude of the northbound movement of loaded and empty cars from Mexico, and the time required in transit by southbound loaded traffic after permits were issued, made it somewhat difficult to match the northbound and southbound movements accurately, a substantial improvement was accomplished in the car balance between this country and Mexico during the period from February to December. During the latter month, however, the return of cars from Mexico dropped off and in the face of an adverse car balance, the I. C. C. called upon the A. A. R. to enforce more drastic restrictions against southbound traffic. As a result of subsequent action shutting off a large proportion of this southbound traffic, representations were made by the State Department to the Interstate Commerce Commission;



Railway Men Are Working Long Hours to Keep the Wheels Turning

following which the Director of the Bureau of Service of that organization and the Chairman of the Car Service Division of the Association of American Railroads went to Mexico City for conference with representatives of the Mexican government, the National Railways and the U. S. Railway Mission to Mexico.

This conference developed that there appeared to be grounds for anticipating a substantial improvement in the operation of the Mexican railroads by reason of a Presidential decree abrogating certain labor rules and regulations. To afford an opportunity for this to be worked out, the I. C. C. suspended order 107 and the Car Service Division embargo on traffic to Mexico was cancelled, effective February 26, 1944. Since then there have been no restrictions of any kind on traffic to Mexico beyond the normal requirements of the standard export regulations.

While the volume of freight subsequently going to Mexico, particularly in the month of March, increased materially, without a corresponding return of American cars so far, it is believed that the necessities of the Mexican internal situation, and the need for co-operation in the rehabilitation of the National Railways of Mexico, the leadership of which is vested in the chairman of the U. S. Railway Mission to Mexico, justifies a more lenient attitude temporarily as to the current adverse balances against the United States in the interchange of freight equipment.

Pointing Way to Future Progress

That is the job of Railroad Committee for the Study of Transportation which is now making its realistic and practical inquiry into all phases of railroading and all forms of transport

WHILE taking in its stride the nation's wartime habit of praising its outstanding performance since Pearl Harbor, the railroad industry has at the same time proceeded with a program of realistic and practical studies which are designed to point the way to future progress in all phases of railroading. Also covered will be developments which may affect railroading, hence the accompanying economic studies and inquiries into other forms of transport.

Such is the job of the Railroad Committee for the Study of Transportation, sponsored by the Association of American Railroads and operating under the chairmanship of A. A. R. Vice-President R. V. Fletcher. Organized about two years ago, the study group consists of the general committee and 15 subcommittees with a total membership of more than 100, drawn from all departments and branches of the industry.

Here Are the Subjects Being Investigated

The line-up of the research work undertaken is convincing evidence that the industry should be well on top of the situation when it comes to knowing about the best way to do things in the post-war era. This is indicated in the titles of the subcommittees which, with their chairmen, are as follows:

Accounting and Statistics, G. T. Carmichael, vice-president and comptroller, New York, New Haven & Hartford.

Air Transport, L. F. Whittemore, assistant to president, Boston & Maine.

Consolidations, C. E. Smith, vice-president, New York, New Haven & Hartford.

Economic Study, J. V. B. Duer, assistant to vice-president, Pennsylvania.

Engineering and Mechanical Research, A. E. Perlman, chief engineer, Denver & Rio Grande Western.

Finance, R. E. Connolly, vice-president, Illinois Central.

Labor and Personnel, L. W. Horning, vice-president—personnel, New York Central.

Legislation, R. V. Fletcher.

Motor Transport, H. R. Lake, general manager, Department of Highway Motor Transport, Atchison, Topeka & Santa Fe.

Operating Methods and Procedures, J. M. Symes, vice-president, Pennsylvania.

Pipe Line Transport, W. G. Vollmer, senior vice-president, Missouri Pacific.

Public Relations, R. S. Henry, assistant to president, Association of American Railroads.

Taxation, Karl W. Fischer, assistant to president, Chicago, Burlington & Quincy.

Traffic, F. J. Wall, vice-president, New York, New Haven & Hartford.

Water Transport, Elmer A. Smith, senior general attorney, Illinois Central.

Progress on the studies up to the close of last year was reviewed in the *Railway Age's* Annual Statistical and Outlook Number, the issue of January 1, page 6. At that time five reports had come from the subcommittees—one from the Subcommittee on Engineering and Mechanical Research, two from the Subcommittee on Labor and Personnel, and two from the Subcommittee on Accounting and Statistics. The first found ready acceptance at the hands of the A. A. R. board of directors which adopted its recommendation and authorized the establishment within the Association of a Department of Technical Research under a director thereof.

Forward Steps in Technological Inquiry

A recent A. A. R. statement indicated that the follow-through to the appointment of Clyde Williams, director of the Battelle Memorial Institute, Columbus, Ohio, as technical consultant on research matters was "preliminary to the filling of the post of director of technical research." Meanwhile, however, Dr. Williams is going ahead with special studies of lightweight cars, motive power, and the metallurgy of rail. It has been emphasized that the research work growing out of this subcommittee's recommendation "does not supplant, but is in addition to, the extensive and long-established research projects of the existing technical committees of the Mechanical and Engineering Divisions, A. A. R."

The published reports of the Subcommittee on Labor and Personnel are the "Partial and Progress Report on Railroad Personnel Problems" which was reviewed in the *Railway Age* of November 27, 1943, page 871; and the "Special Report on Public Relations Training for Railroad Employees," which was highlighted in the article in the Annual Statistical Number, mentioned above. This subcommittee has since submitted four additional reports in tentative form for criticism. They cover Credit Unions in the Railroad Industry; Reemployment of Ex-Service Men and Women; Recreational Programs; and Group Insurance.

Analysis of Cost and Accounting Procedures

The first of the two reports already issued by the Subcommittee on Accounting and Statistics records recent progress on accounting and statistical methods and outlines desirable objectives which might be achieved through research into other similar matters. The second is a criticism of the cost data developed by Ford K. Edwards of the Interstate Commerce Commission's Bureau of Transport Economics and Statistics and introduced in evidence in the No. 28300 investigation of class rates.

The latter was prepared by J. P. McDonald, general statistician, Atchison, Topeka & Santa Fe, who is chairman of the subcommittee's statistical division. That division has since prepared and submitted to the general committee a tentative report embodying a proposed cost-accounting formula. Persons who have seen the report call it the "most elaborate" work ever done on the sub-

ject of cost accounting. The division is also working on studies of budgetary control and simplified passenger divisions.

As has been pointed out from time to time, the most important reports to come out of the program will perhaps be those of the Subcommittee on Economic Study. This subcommittee has undertaken to determine what kind of a world economically the railroads will have to live in after the war, and how much and what kind of traffic they will have. The former involves a careful and systematic survey of past and present economic trends in the United States as a guide to probable production and transportation requirements of the future. In addition to this general survey, special commodity studies are being made to prepare detailed estimates of post-war traffic, region by region, and industry by industry.

Detailed Examination of Traffic Prospects

The commodity studies are under the direction of Loyd J. Kiernan, former railroad statistician of the Equitable Life Assurance Society and prior to that a member of the Illinois Central's traffic department staff. The study on cotton has already been completed and approved by the general committee, while eight or nine other commodity reports are expected to be submitted at the June meeting of the committee. The program contemplates 39 commodity reports.

The broader statistical and economic surveys of the Subcommittee on Economic Study are under the supervision of Dr. Julius H. Parmelee, director of the Bureau of Railway Economics. A 26-page report embodying four such surveys was submitted at the general committee's meeting last month. They deal particularly with population and subjects akin to population.

Meanwhile, the Subcommittee on Air Transport has issued its "Initial Study of Air Transportation," the report which was reviewed in the *Railway Age* of April 1, page 641. As there noted, the report is a factual survey of the conditions under which domestic airline operations have been conducted and are likely to be conducted in the foreseeable post-war period. The further studies of this subcommittee will go into the matter of subsidies to air carriers.

The Subcommittee on Motor Transport is about two-thirds along the way to completion of what has been appraised as its "tremendous task" of covering "every aspect" of the subject assigned to it. Its report is expected to be in final form about October 1. The report of the Subcommittee on Pipe Line Transport is practically finished, and should be ready in June. The tentative draft has been described as a "fine" report—a model as to organization and form.

The Subcommittee on Water Transport has submitted a 71-page first draft of its report on the Mississippi river. It is also at work on studies of the Erie canal and of coastwise and intercoastal transportation by water. Still another study of the Great Lakes may be undertaken, although that has not been definitely decided.

The final report of the Subcommittee on Public Relations was reviewed in the *Railway Age* of February 12, page 362. As the foreword put it, the report "deals broadly with the relations of the railroad industry with the public. It outlines the principles underlying these relations, describes the organization and programs of work heretofore employed, and offers suggestions for the future."

About to be released is the Subcommittee on Taxation's report on federal taxes. This subcommittee still has underway studies of state and local taxes. Generally, it is undertaking to determine the extent to which the railroads may be overtaxed as compared with other industries. The Subcommittee on Consolidations is well along with its inquiry, and expects to submit its report next month.

The Subcommittee on Traffic got a later start than most of the others, but it is now working actively on studies of both freight and passenger traffic. It will have separate divisions looking into carload freight, l.c.l., and passenger business. The division concerned with the latter is a group of 14 passenger traffic officers headed by E. M. Baird of the New York Central.

In addition to its own investigations, this subcommittee will consider the conclusions of the Subcommittee on Economic Study, the subcommittees on other-than-railroad transportation, and other subcommittees as well, in their bearing on the total freight and passenger traffic that may be available to the railroads, its character and composition, and its geographical distribution. It will also consider, among other things, commercial relations between the railroads and their patrons, with a view to recommending policies designed to retain and increase the volume of railroad traffic.

Meanwhile the Subcommittee on Legislation expects to report on transport legislation which should be enacted; the Subcommittee on Operating Practices is dealing with transportation practices and their possible improvement; and the Subcommittee on Finance is concerning itself with the amount of capital necessary for the continued improvement of railroad plant and operations and the best method of raising it.

Late this year, or perhaps early in 1945, the General Committee expects to bring together the various subcommittee reports into one volume, presenting a comprehensive picture of transportation as it is and as it may become. "The approach," as the recent A. A. R. statement put it, "is one of earnest inquiry, embracing nothing as superior merely because it is new, but clinging to nothing old merely because it is established. In that spirit the committee is undertaking to survey the whole field of transportation in America and to look and plan ahead for the future, to the end that there shall be adequate, dependable and serviceable transportation in the public interest economically and efficiently performed."

What Is Research?

Some subjects into which the Committee for the Study of Transportation is inquiring involve no prolonged search—but, rather, require simply an authoritative survey of best current practices and their dissemination for the guidance of individual railroad managements. Other subjects (for example, the "economic study" and the matter of technological research) are so comprehensive and complex that the Committee cannot itself undertake the task of inquiry and analysis, but finds itself with plenty to do in the determination and initiation of a program, and in the selection of competent personnel to pursue the work.

Whatever the apt approach to the subject-matter is—such is the treatment the Committee is according it, with the certainty that there will emerge the most thorough stock-taking of railroad problems and prospects in which the industry has ever engaged.

RAILWAYS MEET ALL DEMANDS

Port situation is crux of problem—with all freight moving promptly, in marked contrast with conditions in World War I.

THE first duty of railways to a nation at war is the expeditious and efficient handling of material moving to the fighting fronts or material for the production at home of military equipment for eventual use abroad. In this respect, the railways have so far excelled all previous performance records as to eliminate all basis for comparison. The faults that cropped up during the first World War were traceable directly to lack of co-operation on the part of government agencies and to the priorities system for moving freight which, for many reasons, failed to work satisfactorily.

In this war, the eastern roads have continued to handle all war materials currently, while the western roads have made especially outstanding records during the last year, despite diminishing manpower, and motive power problems. In the first 10 days of April, 1944, these latter railways handled a daily average of 2,924 loaded cars into California, as compared with 2,550 in the same period of 1943, while in the second 10 days of April, they handled a daily average of 2,781 loads, as compared with 2,537 last year. The railways serving the Pacific Northwest handled a daily average of 1,190 loads bound into that area in the first 10 days of April, as compared with 1,044 loads last year; they moved an average of 1,225 loads in the second 10 days, as compared with 1,222 last year. Since traffic was heavier this year and the man and motive power situations worse, the following remarkable records can be attributed only to improved operations by the individual railways and to the relief afforded through the joint I. C. C.-O. D. T. supervision of routing to the West Coast, handled through the Chicago office of which W. F. Kirk is head. The figures display, in concise form, a truly amazing achievement.

Traffic to the West Coast
First 20 Days of April

	1943	1944
Trains held out of yards one hour or more	411	58
Trains delayed two hours or more for power	1,043	206
Trains delayed two hours or more for crews	96	59
Cars set out because of congestion*	68,424	0
Cars undelivered to connections because of inability to accept	2,999	64
Crews relieved because of the 16-hour law	347	37

* This represents a count of one car for each day the car was set out.

The co-operation that now exists among those concerned with the handling of traffic for the armed forces and for other government agencies affords a remarkable exhibition of the job that Americans can do when they have a proper understanding of each other's problems. Instead of issuing peremptory orders that could lead only to confusion and transportation blockades, the Transportation Corps of the Army, the traffic officers of the Navy and all others concerned with moving military traffic have been content to place responsibility for transportation on the railways and have then co-operated whole-heartedly in bringing the desired results to pass. In this work, the individual railways have been aided materially also by the Military Transportation section of the Car Service division of the A. A. R., the Port Traffic section of the same association, the Bureau of Service of the I. C. C. and the Office of Defense Transportation.

Military Transportation Section

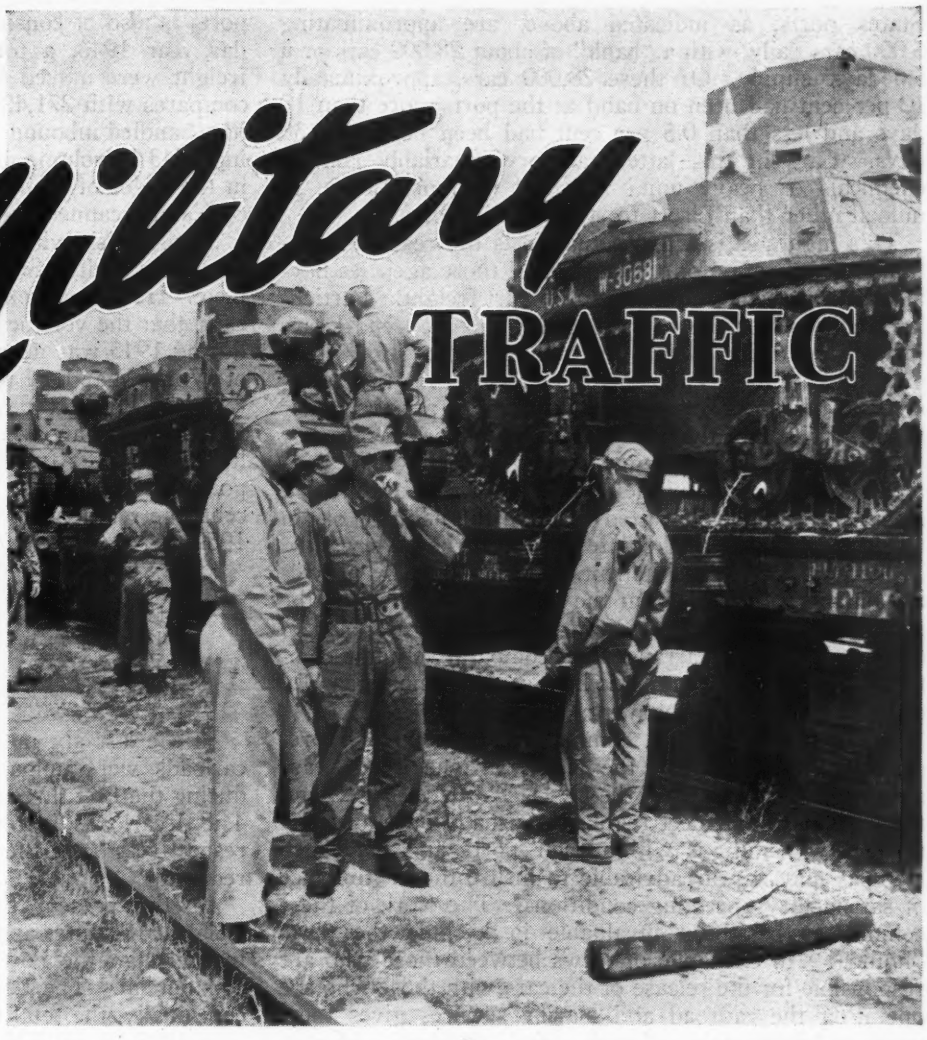
Responsibility for results in the movement of military freight is concentrated in the Military Transportation section of the A. A. R., and the personnel of this Section work closely with the officers of the armed forces; to promote maximum co-operation, the officers of this Section are located in the Pentagon (Army headquarters) building in Washington, adjacent to the headquarters of the Traffic Control division of the Army. One of the principal objectives of these agencies is to get the maximum utilization from every piece of equipment available. In this war, troop trains are including freight as well as passenger cars. To insure that both types of equipment in these trains are used to the utmost, there is a daily co-ordination of organized troop train movements in the War Plans division of the War Department, where the movements of forces between permanent stations and training areas, from such areas back to home or new stations, are set up in advance, etc. The higher officers of the Army and Navy appreciate the value from an equipment utilization standpoint of co-ordinating these divisional moves, and such plans are now being drawn up with flexible schedules and submitted to the Military Transportation section for study and recommendations to determine how the dates suggested can be arranged to require the minimum number of freight and passenger cars.

Improved Loading Methods

The Section also assists the War Department in carrying out experiments in the loading of Army mechanized equipment on freight cars and, through this means, numerous loading methods have been developed that have materially reduced the number of cars required to handle certain types of equipment.

The freight branch of the Military Transportation section serves as a direct liaison between the Army, the Navy and the railways, handling all tracing, diversions and expediting, thus forestalling so-called "expediters" from moving about the country and interfering with railway operations. This branch also supervises the carrying out of any "hold" orders placed by the armed forces or the O. D. T. In general, it serves as a most important cog in the present effective system of traffic control.

FOR Military TRAFFIC



In addition to other activities, the freight branch personnel assists the armed forces in working out clearances for shipments of unusual dimensions, and in scheduling shipments to meet port deadlines and serves in a general advisory capacity on technical operating problems. When the I. C. C. issued Service Order No. 151, requiring all carriers to secure permits before running any special freight trains, the manager of the Military Transportation section was appointed a special agent of the I. C. C. to review all requests for special trains made by the Army, the Navy and the Marine Corps and to grant the necessary authority to the railways when it was determined that such special service was necessary.

Traffic moving through the ports in wartime is confined almost exclusively to military freight or, at least, to freight closely connected with the war effort. In 1943 the railroads handled without serious congestion the greatest volume of export freight traffic on record. This traffic is moving freely through the various ports, all of which are in a completely "liquid" condition.

1.4 Million Carloads of Exports

The magnitude of this achievement at these ports is shown by the fact that 1,401,186 cars of export freight, exclusive of grain and coal, were unloaded at all of the ports in this country in 1943, as compared with 893,576 cars in 1942, an increase of 67 per cent; it is also an increase of 147 per cent above the 568,303 cars handled in 1940. Approximately 4,000 cars were unloaded daily in 1943, compared with 2,616 in 1942 and 2,235 in 1940. The number of cars unloaded at North Atlantic ports in 1943 was more than 75 per cent greater than the number handled in 1918, the most active year in the first World War. Owing to the fact the average load per car was considerably more in 1943 than in 1918, the increase in total tonnage handled was even greater than is indicated by the increase in the number of carloads.

Export grain unloaded at all ports in 1943 totaled 53,204 cars, compared with 30,315 cars in 1942, an increase of 76 percent. In contrast, freight unloaded at all ports in the past year for coastwise movement totaled only 7,333 cars, compared with 30,951 cars in 1942, a decrease of 76 percent.

The character of freight handled at the various ports has changed materially in recent years, nearly 96 per cent of it, other than coal and grain, being export freight in 1943 compared with 69 per cent in 1940. On the other hand, coastal freight moving through the ports accounted for only one half of one per cent of the total in the last year, compared with 26 per cent four years ago.

In March, 1944, 155,058 cars of export freight, excluding coal and grain, were handled through United States ports, compared with 100,294 cars in March, 1943, an increase of 55 per cent. Export grain unloaded at the ports during this month totaled 3,041 cars, compared with 5,653 in March, 1943, a decrease of 46 per cent. In addition, the railroads handled 1,480 carloads of coastal freight in March, 1944, compared with 521 cars in the same month last year. This total of 159,579 cars of export and coastal freight, excluding coal, handled through the ports represented an average daily unloading of 5,148 cars, the highest average on record. This exceeded the previous high of 4,650 cars established in January of this year, and was the first time that the average has exceeded 5,000 cars.

In a survey of the port situation in the Freight Progress Issue of the *Railway Age* a year ago, it was stated that unloadings at the ports were then averaging about 3,400 cars daily, with a "bank" of between 20,000 and 25,000 cars. Unloadings at the present time at all United

States ports, as indicated above, are approximating 5,000 cars daily, with a "bank" of about 28,000 cars or a 5.6 days' supply. Of these 28,000 cars, approximately 12 per cent had been on hand at the ports more than 10 days and less than 0.5 per cent had been held over 30 days. Cars in this latter category invariably contain chemicals or heavy units which it is impracticable to unload other than direct to steamer or lighter.

This highly satisfactory situation is the result of continued co-operation on the part of all those agencies having to do with the movement of export freight. Particular credit is due the Army, the Navy and the Lend-Lease forwarding agencies for maintaining close supervision over this matter. The control exercised over the movement to the ports through the issuance of permits under the supervision of the O. D. T. has also worked out very satisfactorily. These permits, covering commercial shipments, are validated by the A. A. R., which sees to it that shipments are not permitted to leave the point of origin too far in advance of the date on which they are wanted at the port for trans-shipment. This is done by providing on the validation form the dates between which the shipment may be accepted by the railroad at point of origin. Under this arrangement comparatively few commercial shipments have been held at ports more than 10 days awaiting trans-shipment.

At all principal ports, committees made up of representatives of the Army, the Navy, various Lend-Lease and forwarding agencies, the O. D. T., the A. A. R. and the local railroads meet regularly (usually once a week) to review conditions within their ports and take such steps as may appear advisable to insure the continuance of satisfactory operating conditions. The work of these committees has been invaluable in keeping the ports "liquid." An exchange of views between those who are responsible for the release of the cars with those who are operating the railroad and marine services gives them first-hand information of each other's problems and contributes generally to smooth operation.

The movement of import freight through United States ports is also of considerable volume. During the calendar year 1943, a total of 333,513 carloads of import freight were moved by the railroads from ports. This compares with 271,425 cars in the year 1942. Commodities handled inbound by the railroads from the ports during 1943 in volume of more than 10,000 cars each were, in the order of their volume—ore, sugar, bananas, wool, coffee and canned goods.

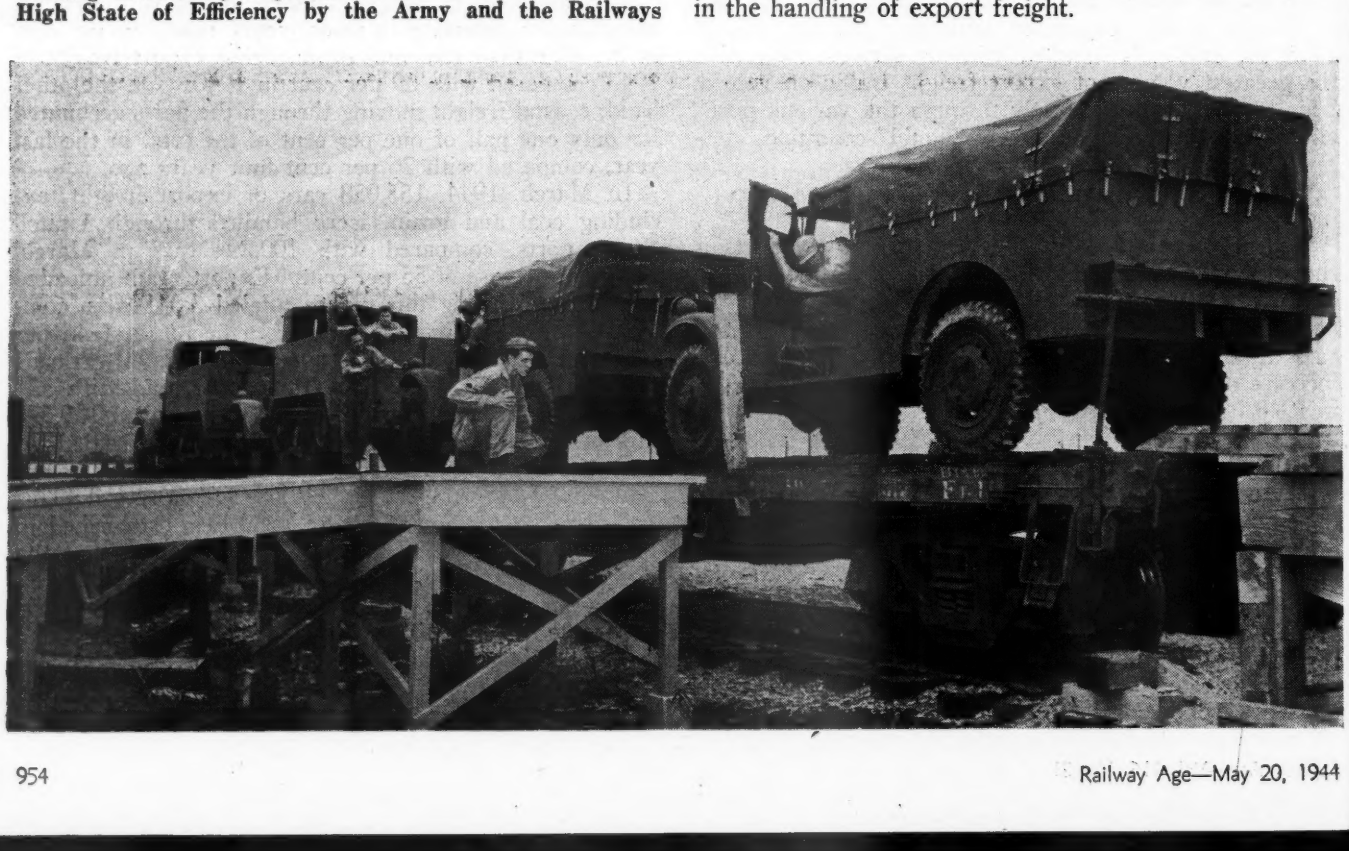
Statistics showing the volume of export freight handled from United States ports prior to 1924 are not complete. However, from such records as are available, it is clear that the volume handled from North Atlantic ports during 1943 was nearly double that handled in any year of World War I. Likewise, it was greater by 35 percent than the heaviest peace-time year of record, i.e., 1925. In that year, an average of approximately 26,516 carloads of export freight per month was unloaded at the port of New York. If this volume is taken as 100 per cent, the relationship of the movements during the years 1939 to 1943 are as follows:

1939	40 percent
1940	72 percent
1941	92 percent
1942	109 percent
1943	135 percent

In the last six months of 1943 an average of 41,391 carloads were unloaded monthly at New York, while during the first three months of 1944 this average rose to 44,831 carloads, increases of 156 percent and 169 percent respectively over the corresponding heaviest peace-time record.

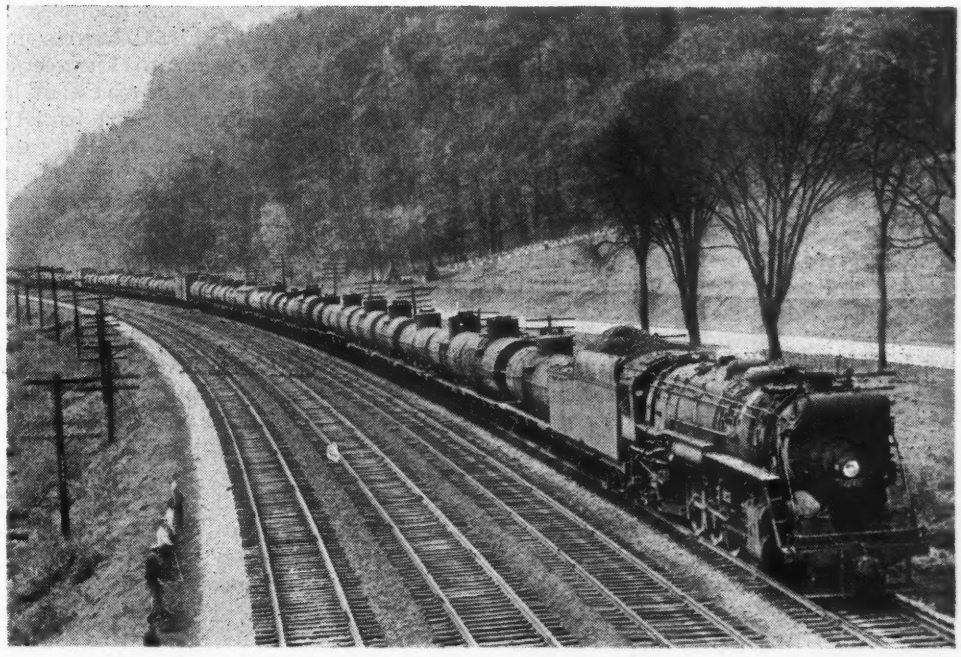
At the present time Government and Lend-Lease freight constitutes approximately 88 percent of that moving through the ports, the remaining 12 percent being commercial. The tempo of the movement is increasing continually, the total movement through all ports for the year 1943 (1,461,723 cars) being 53 percent larger than in 1942, while the first three months of 1944 have shown a further substantial increase over the first three months of 1943. With the continued co-operation of all concerned, however, it is confidently expected that the railroads will continue to meet all demands made on them in the handling of export freight.

Loading of Military Impedimenta Has Been Brought to a High State of Efficiency by the Army and the Railways



Railways Meet Test in Handling Oil

Solve national crisis by providing transportation for all petroleum produced for both armed forces and civilian needs



THE transportation of great quantities of oil long distances was a job which had not confronted the railways for years; it was undertaken only when other agencies became unable to maintain their service. Yet, the railways rose to the emergency in such a striking manner that railway transportation has not become the bottleneck in determining the volume of the nation's supply of oil. For more than a year and a half, the railways have handled all the oil that has been offered them by the producers and have moved it to destination at unprecedented speeds. Every carload of oil offered for shipment has moved promptly and delivered hours and even days ahead of peacetime schedules. Moreover, this excellent record is still being maintained despite the fact that, during recent months, the task has steadily become more complicated. Originally, crude oil constituted the bulk of the volume, and it originates in relatively few areas. Now, refineries in many localities are shipping finished products by rail, and this development has required the complete revamping of the symbol train setup that was devised 18 months ago and has made operations much more difficult.

The railways, the Office of Defense Transportation, the A. A. R., and other interested agencies have accomplished this feat largely through the perfection of a high degree of co-ordination of all the various operations involved. To accomplish this unprecedented task of transportation, tank cars were pooled and routings of the so-called symbol trains were set up, based at first largely on the estimated (and later on the actual) capacity of the various railways to handle the oil, and also on the speed with which solid trains could be moved through various interchange points. When this set-up was arranged, it was made as flexible as possible to allow for accidents, floods or other eventualities. While individual railways do not have the authority to re-route these trains for any cause, the office of the O. D. T. in Chicago is empowered to do so. When, for any reason, either an eastern or a western railway cannot handle an oil train without delay, that office is notified. Records are kept of all oil trains en route and also of the day-by-day ability of various lines to handle oil trains, and, when delay threatens, trains are diverted to other routes.

For example, a few weeks ago, an eastern railway advised that, because of an accident, it could not handle oil trains for several hours. The O. D. T. representative arranged immediately for two oil trains then en route, and which were to have been delivered to this line at Indiana junctions, to continue on to Buffalo and thence to their destination. Meanwhile, the general superintendent of transportation of a southwestern line, on which several oil trains were rolling north, reported that his main line was severed by wash-outs, which would delay the oil trains many hours if they were permitted to continue as routed. A telephone conversation with another line quickly developed the fact that this oil could be interchanged at a junction south of the wash-outs, and such diversion was accordingly authorized.

5,000 Carloads of Oil Daily

All records for rail movements of petroleum to the eastern seaboard were broken last June and July when for five consecutive weeks the average daily loading totaled 1,044,117 barrels, or about 5,000 cars per day. During the period of this record loading, approximately 75,000 tank cars were in the service and the railroads, by co-ordinating their operations in the movement of these tank cars on symbol train schedules established by the Office of Defense Transportation, were able to move the cars largely in solid trainlots and thus secure a 15-day turn-around. Everything had to click to make this highly efficient record possible; the petroleum industry, under the leadership of the Petroleum Administration for War, arranged to load and unload the cars with an average detention of less than 10 hours per car, and the traffic was so channeled that few interruptions retarded the movement during this entire period. It may never again be necessary to handle more than 1,000,000 barrels of oil per day, but this record takes its place with many others made during the present war as a tribute to American ingenuity and private enterprise.

The Big Inch pipeline was completed from Longview, Texas, to Linden, N. J., on October 27, 1943, and the

railroads were then relieved of the necessity for handling upwards of 200,000 barrels of oil per day. For more than eight months prior to that time, oil had moved by pipeline from the southwest to Norris City, Ill., and thence by tank car to eastern points at the rate of 900 cars, or 12 trains, per day, during the summer months. In connection with the operation of this pipeline, mention should be made of the remarkable transportation performance which occurred when the pipeline broke on May 18, during the heavy spring floods in the Mississippi Valley last year, requiring the railways to take over the burden of the much longer haul again on short notice. The line broke at the crossing of the Arkansas river near Little Rock and, because of the unusually high water, it was estimated by engineers called in to repair the break that the line would be out of operation for three or four weeks. However, by using a railroad bridge and building a loop of 20-inch pipe 7 miles long, the break was repaired in nine days and loadings at Norris City were resumed on May 27. It is also noteworthy that while these heavy spring floods seriously crippled railroad operations over many of the large Mississippi Valley river crossings for three weeks, the emergency control of the eastern petroleum movement was so effective in diverting these trains through New Orleans, Memphis and other crossings that there was very little interference with the normal deliveries of oil in eastern territory.

Mild Winter Helped

After the Big Inch pipeline took over part of the oil transportation load from the railroads last October, there was some reduction in the tank car movement to the East Coast and the daily average deliveries dropped from 735,000 barrels in November to 668,000 during December, with weather conditions also sharing the responsibility for some of this decrease. At the same time about 8,000 tank cars, mostly taken out of the Norris City pool, were transferred to Pacific Coast petroleum movements and for the handling of alcohol under the government's synthetic rubber program. Starting in January of this year, intensive demands were again made for increased movements of petroleum to the East and the railroads were called upon to haul about 700,000 barrels daily on a programmed movement that involved the transportation of nearly 1,500,000 barrels daily by all forms of transportation.

While we have just come through what is generally considered a mild winter, it is very fortunate from the viewpoint of oil transportation that there was not greater interference by the elements with rail movement, for several unexpected breaks occurred in the Little Big Inch pipeline that was scheduled originally to handle oil through to the East by December 15 or January 1, with the result that a heavy and unlooked-for burden was placed on the rail lines to haul over 700,000 barrels of oil per day, with barely 63,000 tank cars available, in order to make up for the interruptions in the pipeline service. The actual rail movement during February was approximately 713,000 barrels per day, while, with some unexpected help from ocean tankers, the total movement to East Coast destinations by all forms of transportation was in excess of 1,550,000 barrels per day. This included a steadily growing movement of oil in drums in boxcars.

The Little Big Inch pipeline started handling fuel oil and high octane gasoline to Linden, N. J., on March 2, thus removing more of the pressure from the railroads. The two large pipelines are now moving an average of over 400,000 barrels of oil daily to the East, while the total movement by all agencies of transportation established an all-time record during the week ending March 18, when approximately 1,790,000 barrels were handled a day. The railroads averaged 750,000 barrels daily during March and under present favorable weather conditions it will doubtless be possible for them to handle over 800,000 barrels daily, if the need exists for such a movement. The average length of rail haul now is considerably in excess of last year when there was a large amount of short haul traffic from the pipeline terminal at Norris City, Ill., to other shipping points in that vicinity in Illinois, Indiana and Ohio, most of which has now been discontinued.

Since the first symbol oil trains to eastern territory were established on August 1, 1942, the Tank Car section of the Car Service division, A. A. R., has maintained complete records of these movements, covering both loaded and empty trains, and has supervised the handling generally over and between about 60 railroad systems participating in this movement. Close check has been kept on performance in comparison with published schedules and on the volume of traffic moving on these lines to insure a proper division of the load on the various lines and through the principal gateways. The Office of Defense Transportation took over the routing of this traffic on October 1, 1942, making it possible under governmental authority to channel the shipments further and build up the volume moving over various routes to facilitate trainlot operation.

The oil traffic has moved faster than any other class of freight, with the possible exception of military impedimenta handled along with troops. Many of the railroads which are handling symbol oil trains are regularly reporting from 200 to 275 miles per car per day, and the average on all railroads handling these oil trains has been consistently in the neighborhood of 200 miles per day. Railroad men understand that "oil is ammunition" and must be given expeditious handling at all times.

Under the program organized by the O. D. T. Tank Car Maintenance Committee, the railroads and private tank car owners have co-operated fully in maintaining and repairing these cars to the extent that for some time bad order tank cars have not exceeded 2½ per cent of the total number in service. Repairs have been made currently and in many instances without the necessity of removing cars from the symbol oil trains.

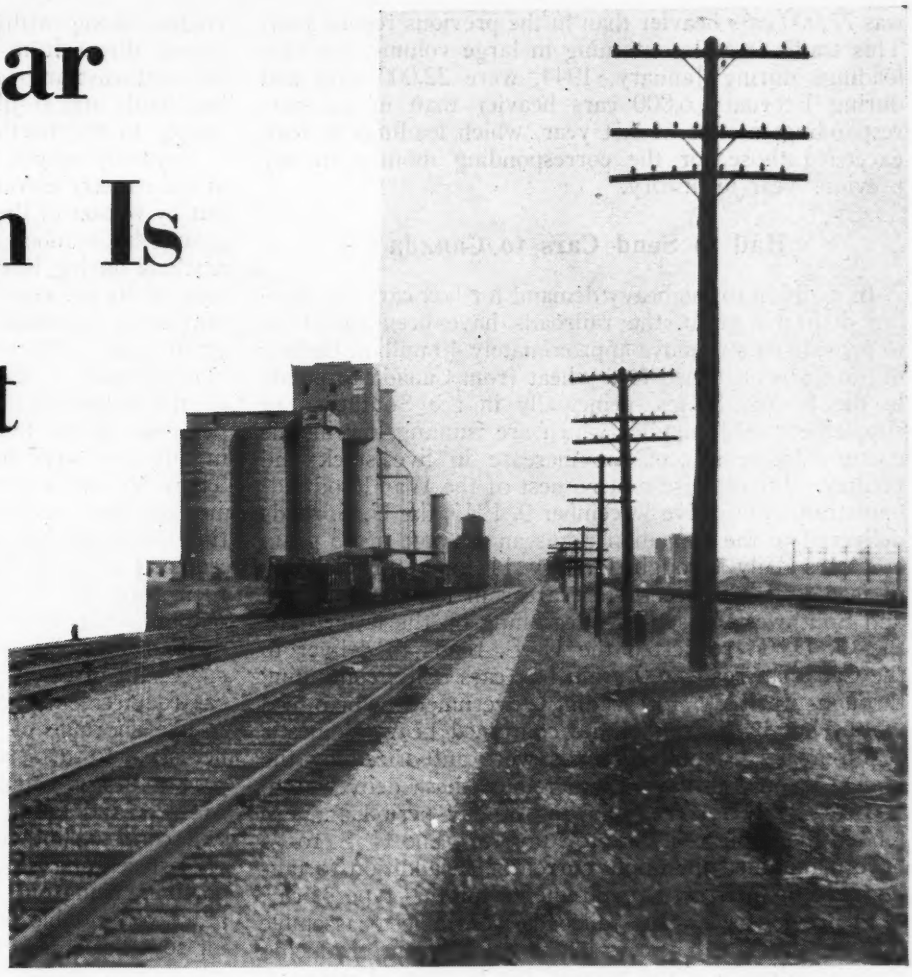
Trainlot Movements to the West

With the gradual shift of petroleum shipments to the Pacific Coast, symbol train movements are now being organized to that area. One trainlot movement has already been established from Houston and vicinity to Seattle, and it is likely that another train will soon be set up from west Texas to Los Angeles harbor. There are also prospects of a trainlot movement, made up of shipments originating in the vicinity of Kansas City, to run to one of the Pacific Coast ports.

The record which the railways have made in the handling of this oil reflects great credit on the versatility of their organization. Without warning or opportunity for preparation, they rose to the national emergency in a manner that exceeded the expectations of even their own leaders. By the service which they rendered, they met in full the record demands of our combat forces, and the scarcely less pressing needs of our civilian population, and in so doing added another outstanding chapter in the epic story of the railways' contribution to the nation's war effort.

Box Car Situation Is Tight

Record wheat movement imposed abnormal demand that exceeded the supply of box cars for a time



The Flood of Wheat Caused Considerable Operating Difficulties in the Northwest

DESPITE emergency measures adopted by the Car Service division of the A. A. R., the O. D. T. and the I. C. C., a persistently tight situation prevailed in box cars for some months. This was brought about primarily by the vastly increased movement of wheat and resulted in the closing of many grain elevators for weeks last fall because of lack of cars. Efforts to relieve the situation were successful late in the year and every possible measure is now being adopted to avoid a recurrence this year.

The box car supply was tight throughout the last year, particularly with respect to Class A and special types of box cars, notwithstanding the beneficial effects of the provisions of O. D. T. General Orders 1 and 18 covering the heavier loading of l. c. l. and general commercial freight, respectively. The difficulty arose in large measure because the net ownership of box cars decreased approximately 10,000 during 1943 due to inability of the roads to secure approval for the construction of new box cars in sufficient numbers to make good normal losses in service. The percentage of box cars awaiting repairs was kept at a record low for all time. This was accomplished in spite of the fact that, because of the constantly shifting war traffic and the exceedingly active demand generally, box cars of all types on home roads decreased from 41.1 per cent of the ownership at the beginning of last year to 24.9 per cent at the end. Only 2,279 new box cars were added during the year.

The grain movement continues to present the heaviest single box car distribution problem of the railways. Last year, unlike previous years, the railroads were called upon to furnish box cars not only to move the new crop, but also to provide simultaneously for extremely heavy movements of old stocks of grain from storage for feed and other purposes. It has also been necessary to provide box cars of high classification to transport large quantities of important war materials, foodstuffs and imports, such as raw sugar, phosphates, etc., which formerly moved via all-water routes to North Atlantic points, but which came in last year through South America and Gulf ports and required rail transportation therefrom. Also by reason of the shortage of domestic pulpwood, it has been necessary to turn box cars over to the Canadian roads to handle the increased volume of pulpwood moving into this country.

The grain situation last year was just the reverse of that which prevailed in 1942 and 1941, during which latter years the problem that confronted the farmers and the grain trade most acutely was to find space to store the new crop which the terminal elevators were unable to accept. Last year, available storage space at all of the principal terminal markets was substantially greater than in former years; therefore, the railroads were faced with a demand for moving an unprecedented volume of wheat from the country stations to the terminal markets immediately following the harvest, which was of record proportions. As a result of all these circumstances, the loading of grain and grain products last year was heavier than ever before in the history of the railroads; it was 21.6 per cent above that in 1942, and

was 77,000 cars heavier than in the previous record year. This traffic is still continuing in large volume, for carloadings during January, 1944, were 22,000 cars and during February 6,000 cars heavier than in the corresponding months of last year, which loadings in turn exceeded those for the corresponding months in any previous year in history.

Had to Send Cars to Canada

In addition to the heavy demand for box cars for moving domestic grain, the railroads have been called on to provide cars to move approximately 40 million bushels of government-owned feed wheat from Canada to points in the United States, principally in the Southeast, to supplement feed supplies which are running low in this country by reason of the increase in live stock and poultry. In response to a request of the War Food Administration, effective December 9, 1943, the U. S. roads delivered to the Canadian roads an average of 25 grain box cars daily through January 11 for return loading of feed grains to feed-deficit areas in the Southeastern and Southwestern states. Beginning on the latter date, the O. D. T. requested the U. S. roads to deliver to the Canadian roads 200 grain box cars daily, continuing through April 30, for loading government-owned feed wheat, but by reason of the continued heavy domestic requirements, the U. S. roads were authorized by the O. D. T. on February 12 to reduce these deliveries to 100 cars daily for the following 30-day period and extended the expiration date to May 15. The U. S. roads have maintained the quota currently, in addition to taking care of their own requirements for this type of car.

In previous years the railroads were able to assemble large reserves of box cars in the heavy grain producing areas in advance of the harvest, but because of unprecedented requirements for high grade cars to protect the current loading of war freight and Lend-Lease supplies, the railroads last year were not able to accumulate the usual reserves in the winter and spring wheat territories. In order to give maximum assistance to the western grain-originating roads, quota orders calling for the reduction of western box cars on eastern and southeastern roads were issued by the Car Service division of the A. A. R. on May 8, and under this program the number of western box cars on the principal eastern and southeastern railroads was reduced approximately 13,000 through July 15. As a result, the Southwest winter wheat crop was handled satisfactorily, only a few country elevators being closed for short periods because of delays in receiving cars, and the amount of grain that was placed on the ground because of the inability of the country elevators to handle it or failure to receive the required number of cars daily, was substantially less than during either of the two previous harvesting seasons. Last season embargo regulations under I. C. C. Service Order No. 80 were applied at only four markets in the southwest and then for only a few weeks until the movement from the country subsided.

The most acute and prolonged shortage of box cars was experienced in the northwest spring wheat territory where the supply was not adequate from the start of the harvest last summer. Indicative of the large production throughout the northwest last year, the state of North Dakota produced the largest crop in its history. In fact, the 1943 production of this state was slightly larger than that of Kansas, which ordinarily produces more wheat than any other state. Furthermore, the surplus wheat stocks that were available for feed purposes were located in these northwest states and moved in volume along with the new crop. These feed grains moved direct from country stations to deficit areas in the southeast and southwest, involving longer than normal hauls and resulting in a constant drain on the car supply to the northwest roads.

Normally only a small percentage of the cars loading at the country elevators go beyond the terminal markets, but by reason of the government's feed and alcohol program, the number of cars that by-passed the terminal markets during last season's movement averaged in excess of 40 per cent of the total number received at the northwest terminal markets. This constant drain of grain cars on the northwest roads inevitably resulted in closing many of the country elevators until, at the peak of the movement, the operations of approximately 25 per cent of the total country licensed storage facilities in this area were restricted by reason of car shortages. These blocked elevators were not closed completely, for most of them received a few cars every day, but, at a time when the farmers desired to dispose of their record crop as harvested, the country elevators were able to take their grain only as fast as cars were furnished for loading out grain already in storage. In spite of the unprecedented movement of grain, the railroads have now been successful in re-opening all of the blocked elevators and car requirements are now being protected currently.

The shortage of food grains in Mexico has made it necessary to furnish a large number of box cars to transport a heavy volume of grain from this country into Mexico, and present prospects are that this movement will continue indefinitely.

Last season's soya bean crop was also of record proportions, being only slightly less than the 1942 crop and practically double the 1941 crop. The war-time demand for soya beans is extremely heavy and, together with the large crop, led to heavier than usual requirements for box cars for loading this commodity, although the crop was moved without delay at country stations and without congestion at processing plants.

During the last year the railroads were called upon to give further assistance in the program for supplying petroleum to the Eastern seaboard and furnished a total of 27,986 box cars for hauling oil in drums from the Southwest to New England points.

For Potatoes and Perishables

Also because of inadequate storage facilities in the growing areas and an abnormally heavy yield, the railroads were called upon to supply more than the usual number of box cars for handling the Maine potato crop to move this surplus production to market or suitable storage. Furthermore, because of the heavy demands for refrigerator cars, it became necessary to press into service ventilated box cars for loading perishable commodities moving from the southeast to points east of the Mississippi and south of the Ohio rivers and south of a line drawn from Pittsburgh east to New York, where freezing damage would not likely occur.

The production and movement of military vehicles has continued at a high rate, not only from producing points, but from Army and Navy supply depots at various locations throughout the country, requiring the most intensive use of the available supply of 40 and 50-ft. end-door and wide side-door cars and also of 50-ft. cars equipped with auto loading devices. Despite this heavy production and the necessity for moving large numbers of vehicles from and to relocation points, the supply of these special types of box cars has been adequate to take care of all requirements of both the armed forces and civilian needs.

The Railways Have Materially Improved Their Performance

Individual Railways Set Records

Reach new highs in operating efficiency and volume of traffic handled

OBVIOUSLY, the unparalleled job of handling the nation's wartime traffic by the railways as a whole, as set forth in this issue, has been reflected in the records compiled on the individual railways. It has become routine to hear of these splendid ratios, but this does not detract from the credit due the officers and men on the individual railways who are making these records possible. The following recital of facts would have seemed incredible only a few years ago. There has been nothing like it in the history of transportation.

Alton—With 3.8 per cent less train-miles in 1943, the Alton hauled 12.2 per cent more revenue ton-miles freight volume last year than in 1942, its total reaching a new maximum of 2,786,049,000 revenue ton-miles. While there was a slight decrease in the volume of forest products and manufactures handled, the tonnages of mine and agricultural products increased 27 and 21 per cent, respectively. Other comparisons of 1943 with 1942 follow:

	1943	Per Cent Increase over 1942
Revenue tons carried	13,649,073	8.5
Ton-miles per mile of operated road	3,168,296	11.8
Tons per loaded car	31.98	11.9
Gross tons per train-mile	2,074	3.7
Average haul in miles (revenue)	204	12.7

Atchison, Topeka & Santa Fe—Freight loadings in 1943 totaled 1,819,732 cars, compared with 1,754,862 cars in 1942, an increase of 3.7 per cent. Revenue ton-miles totaled 31,952,423,000, an increase of 13.7 per cent over the previous record figure established in 1942. While crops in Santa Fe territory were not up to those of the preceding year, traffic in general was continuously heavy throughout 1943, without the usual seasonal ebb and flow, which favored maximum transportation performance. Other comparisons of 1943 and 1942 follow:

	1943	1942
Tons of revenue freight	57,711,140	51,036,292
Average load per car (tons)	27.75	26.46
Tons per freight train-mile	926.31	820.25

This road has been a heavy-duty war traffic line to the

Pacific Coast ever since hostilities began and has contributed also to the important task of supplying fruits and vegetables to the armed forces and the public. By means of C. T. C. installations and other improvements, it has provided further capacity for still heavier traffic if the necessity should arise.

Atlanta & St. Andrews Bay—The following statistics reveal the record operations in 1943:

	1943	1941	Per Cent Increase
Tons of revenue freight handled	2,092,192	1,519,442	37.7
Revenue net ton-miles	156,198,000	108,736,000	43.7
Revenue net ton-miles per mile of road	1,904,853	1,326,048	43.6
Average haul per ton (miles)	74.66	71.56	4.3
Tons per freight train-mile	1,079	966	11.7
Average revenue load per car (tons)	35	34	2.9
Loaded freight car-miles	4,507,570	3,205,323	40.6
Empty freight car-miles	3,824,030	3,053,547	25.2
Per cent of empty car mileage	45.90	48.79	−2.89

Atlantic Coast Line—Wartime transportation again swelled the traffic volume on the A. C. L. to an all-time high. Tone of freight handled reached the figure of 39,724,099, an increase of 16 per cent over 1942 and 59 per cent over 1941. Gross ton-miles of 22,952,572,000 showed somewhat greater growth, an increase of 21 per cent over 1942 and of 77 per cent over 1941, whereas freight train-miles increased only 10 per cent over 1942 and 39 per cent over 1941. Average gross tons handled per train rose to 1,882 compared with 1,719 in 1942 and 1,531 in 1941. Miles per car-day averaged 47.5 in December, 1943, as compared with 45.1 miles in December, 1941. This line is in a territory that literally bristles with military installations and, in addition, it has been called upon to handle Florida perishables and other coastwise traffic that normally moves by boat.

Baltimore & Ohio—In 1943, the Baltimore & Ohio broke all previous records with a traffic of 200,000,000 gross ton-miles per calendar day, an increase of 10 per cent over 1942. Revenue ton-miles of 93,700,000 a day likewise constituted a record, 14 per cent more than in the previous year. Gross trainload of 2,433 tons and net trainload of 1,194 tons also established new marks in 1943.

Miles per car-day, excluding bad order cars, averaged 47.7, while the average of 127.4 miles per day per serviceable freight locomotive set a new record. Serving the intensely industrial east, this road has been called upon to handle a very large share of the military freight and the iron, steel and other raw materials that go into its manufacture.

Bangor & Aroostook—This line operates primarily through an agricultural and forest territory and, as a consequence, did not feel the impact of the movement of industrial war materials. Yet there has been a progressive growth in the traffic handled since 1939, culminating with the peak year of 1943—in which revenue net tons handled were 16 per cent greater than in 1942 and 42 per cent more than 1939. The huge crop of potatoes in 1943 aggregated 1,066,743 tons and was largely responsible for the record traffic load, while a decline from the previous year in the movement of forest products was overcome by an increase in manufactured items, notably printing paper and fertilizers. Supplying the armed forces and the public with potatoes has been one of this line's big jobs.

Belt Ry. of Chicago—The number of cars handled in 1943 totaled 2,282,967, an increase of 76,008, or 3 per cent, over 1942, and of 337,513 cars, or 17 per cent, over 1941. During 1943, a total of 85,585 cars of perishable freight were handled, 9 per cent less than 1942, which decline is attributed to governmental restrictions on movement of some commodities and to smaller crops.

A total of 5,930 cars of live stock were handled, which is an increase of 16 per cent over 1942. The Rail to Water Transfer Company facility for the transfer of coal and other commodities from car to lake vessel handled 1,065,000 tons, or 19,312 carloads, of coal during the year; it is expected that the volume of coal thus handled will be substantially increased in 1944, releasing cars for use elsewhere.

Bessemer & Lake Erie—Operating results, measured by average tons per car, gross and net ton-miles per train-hour and train speeds, continued at high levels during 1943. Net ton-miles per loaded car-mile rose to 76.3 tons, the highest reported on any Class I railroad. Gross ton-miles per train-hour, 81,796 in 1943, were also the highest average for any Class I railroad, while train speed increased 5 per cent over the preceding year. The average load per car of ore amounted to 86.23 net tons and 65.73 net tons for coal, the highest loadings prevailing on any railroad loading ore or dumping coal at Lower Lake Erie ports. The Bessemer, as a large ore-carrying road, is a vital link in the country's iron and steel production.

Boston & Maine—Net ton-miles of 5,020,111,000 in 1943 set a new record; they were 11.4 per cent greater than in 1942 and 98.9 per cent more than in 1940, while train-miles increased only 6.5 per cent and 44 per cent, respectively. The increase in government traffic to navy yards, air bases, army camps, arsenals and shipyards, together with the growth in petroleum traffic and the unusually large crop of Maine potatoes, accounted for the greater part of the increased business. Other all-time records established in 1943 were:

	1943	1942	1940
Gross tons per train	2,287	2,261	1,973
Gross ton-miles per train-hour	33,858	33,274	27,996
Car-miles per car-day	54.2	50.6	38.7

Normally, a large proportion of the coal and practically all petroleum products move into New England by water, but, with the drastic curtailment of coastwise traffic, this movement was thrown on the railroads. In 1943, the B. & M. handled 217,539 carloads of coal and petroleum products as compared with 52,000 carloads in 1940—an increase of 418 per cent. The nine-hour schedule on oil trains, both loaded and empty, over a distance of 186 miles between Mechanicville, N. Y., and Boston, Mass., and including terminal handling at both ends, was closely observed.

Central of Georgia—This line surpassed all previous records by hauling 13,713,009 revenue net tons in 1943, an increase of 10 per cent over 1942. Also, with an increase of only 6 per cent in freight train-mileage over 1942, revenue net ton-miles rose 21 per cent to a record of 2,665,599,287, which total is 117 per cent greater than handled in 1939. Tons of freight carried per revenue freight train-mile increased 13 per cent over the previous year while average tons per loaded car-mile increased 9 per cent.

The volume of agricultural shipments, particularly grain and milled products, showed an unusual expansion and this, with an increase in manufactured products, accounts principally for the greater traffic volume. This road serves many important military installations and is called upon constantly for fast service.

Central of New Jersey—An all-time peak of 3,742,646,000 net ton-miles of revenue freight was handled by this railway in 1943, and this volume continues to increase in 1944, as the gross ton-miles in the early months

of this year have averaged nearly 8 per cent over 1943. The peak in net ton-miles in 1943 compares with 3,543,550,740 in 1942 and 2,827,472,385 in 1929. This railway handles about 50 per cent of the petroleum products shipped by rail into the New York harbor area.

Chesapeake & Ohio—The most conspicuous movement on the C. & O. has been the greatly expanded coal traffic, which showed an increase of 6.6 per cent in 1943 over 1942. Due to the unrest in the coal fields in the early part of the year, the expansion of this traffic occurred largely in the latter part and it has shown continued growth in 1944. The monthly records of eastbound movement of this commodity through the terminals at Hinton and Clifton Forge were broken in February of this year when 78,197 carloads were handled, an increase of 12 per cent over December, 1943, and of 22 per cent over January, 1942, the largest months of those years. The number of cars of other than coal which were unloaded at Newport News, Va., was 50,970, an increase of 43.9 per cent over 1942 and 43.3 per cent over 1941. Other high marks in 1943 were as follows:

	1943	Increase Over 1942	Increase Over 1941
Tons of revenue freight handled...	101,475,377	6.9%	21.6%
Revenue net ton-miles (1,000)...	27,547,823	7.8%	22.2%
Net ton-miles per car-day.....	1,522	12.0%	30.8%
Net ton-miles per loaded car-mile..	49.3	3.6%	8.4%
Car-miles per freight-car-day.....	55.2	7.0%	22.7%
Net ton-miles per mile of road per day	26,159	8.3%	22.4%

Chicago & Eastern Illinois—Revenue net tons of freight totaled 14,641,923 in 1943, the largest in its history, and an increase of 37 per cent over 1942 and of 68 per cent over 1941. The movement of coal played an important part in this traffic volume; it amounted to 3,245,464 revenue net tons, which was an increase of 1.5 per cent over 1942. The quantities of petroleum and related products handled enroute from the Southwestern area to the North Atlantic seaboard was very substantial, totaling 5,118,453 net tons in 1943, compared with 1,665,629 net tons in 1942, an increase of 207 per cent.

Revenue ton-miles of freight totaled 3,347,325,466, an increase of 59.8 per cent over the preceding year and of 112.3 per cent over 1941. Freight traffic density, measured by tons of revenue freight carried one mile per mile of road operated, increased 61.2 per cent and 115.3 per cent, respectively. The average haul was 228.6 miles; the average load per train was 936.9 tons and the average load per loaded car was 31.6 tons in 1943, which are increases of 16, 10 and 5 per cent over 1942.

Interchange and Industrial Switching Has Been Accelerated

Chicago & North Western—With 6.4 per cent fewer freight locomotives in 1943 than in 1942, the revenue net ton-miles handled increased 11.4 per cent, reaching a new high figure of 11,428,855,000 in 1943, an increase of 97 per cent over 1939 and of 28 per cent over 1929, respectively. This increase over 1942 was accomplished with an increase of only 4.1 per cent in train-miles, due, in part, to an increase in the average haul to 196 miles, the longest average haul in the history of the C. & N. W. Tons loaded per car continued to increase; they were 10 per cent greater than in 1942 and about twice the low record made during the depression years of 1931 and 1932. Net tons per train increased 7 per cent in 1943 and were more than double the load carried during the low year of 1932. The tonnage of iron ore

handled declined from 1942 because of the shorter navigation season, but this loss was more than offset by the huge movement of grains, particularly wheat, which increased 155 per cent. As an integral part of an important transcontinental route, the North Western is called upon to handle much vital war traffic.

Chicago, Burlington & Quincy—Two unusual developments on the Burlington in 1943 were the handling of oil trains enroute from Texas to the Atlantic Seaboard and the Pacific Northwest. In the period from January 1, 1943, to February 1, 1944, 838 oil trains with 30,242 cars moving to the Atlantic seaboard, were handled from Kansas City to Chicago in an average time from receipt at Kansas City to delivery to connections at Chicago, of 26 hours and 49 minutes. An average of one train per day of oil has been handled for the Pacific Northwest since August, 1943, in an average time of 98 hours from point of origin to Laurel, Montana. Other unusual movements were 142 ore trains moving from various southern origins to aluminum plants on the North Pacific Coast on approximate schedules set up by the shippers, and the handling of 24,146 empty refrigerator cars from Chicago to connections at Sioux City, Iowa, Laurel, Mont., and the Twin Cities from April, 1943, through March, 1944. The Burlington serves a midwestern area with a great many war plants; it also comprises an important link in the movement of military traffic to the West Coast.

Chicago Great Western—The volume of freight traffic handled surpassed previous records, with 9,286,188 tons hauled in 1943, an increase of 17.5 per cent over 1942; ton-miles aggregated more than 3,133,000,000, an increase of 20 per cent over the previous peak recorded in 1942. Business in the first quarter of 1944 increased about 5 per cent more than in the comparative period of 1943. In serving the important war production centers of Chicago, Kansas City, Omaha, the Twin Cities and intermediate points, the C. G. W. takes an important part in the handling of wartime freight.

Chicago, Milwaukee, St. Paul & Pacific—During 1943, the Milwaukee handled 14.5 per cent more revenue net ton-miles than in 1942, with its total aggregating 18,209,707,441, the highest in its history. This movement was handled with a considerably smaller number of locomotives and cars than were owned in the preceding traffic peaks of 1928 and 1929. New all-time high annual averages were established in gross tons and net tons per train, in net tons per car, in net ton-miles per freight-car-day and in miles per freight-car-day. Revenue tons carried in 1943 totaled 53,824,310, an increase of 10.5 per cent over the preceding year. As a transcontinental line to the northern Pacific Northwest, the Milwaukee has been called upon to handle many heavy movements and specialized problems of transportation.

Modern Retarder Yards Have Aided Materially in Handling the Wartime Load

Chicago, Rock Island & Pacific—Using the prewar year of 1940 as a basis for comparison, the Rock Island, with a decrease of 7 per cent in total number of locomotives and an increase of only 8 per cent in total freight cars on line, increased the ton-miles of freight handled 101 per cent in 1943. This road made a particularly strenuous effort to keep the largest possible portion of its available locomotives and cars in active service by reducing the number laid up awaiting repairs. Comparing 1943 again with the year 1940, the number of road freight locomotives in bad order was reduced 55 per cent, increasing the total number in serviceable condition 13 per cent, while the number of stored locomotives was reduced 100 per cent, resulting in an increase of 27 per cent

in the number actually used in hauling freight. Likewise, while the number of freight cars on line increased 8 per cent, the number in bad order was reduced 22 per cent, resulting in an increase in serviceable equipment of 10 per cent; the number of stored, or surplus, cars was reduced 93 per cent and the net result was an increase of 27 per cent in cars actually in use. The following figures illustrate the increased efficiency of 1943 over 1940:

	Per Cent Increase
Miles per road freight-locomotive-day	53
Loaded cars per train	16
Net tons per loaded car	29
Net tons per train	50
Car-miles per car-day	27
Per cent of loaded to total car-miles	6
Freight train gross ton-miles	60
Net ton-miles per car per day	82

Delaware & Hudson—A specific example of wartime transportation on the D. & H. is illustrated by the unusual and exceptionally heavy movement of petroleum products, which expanded from 26,866 cars in 1942 to 51,179 cars in 1943, an increase of 90.5 per cent. Another example is the movement of 657,207 tons of bauxite ore during 1943, of which 239,045 tons were unloaded, dried and reshipped at a point on the line, necessitating a second handling and additional switching. Other pertinent operating statistics are:

	1943	1942
Locomotive miles per train-mile	1.22	1.25
Gross tons per train	2,863	2,661
Gross ton-miles per train-hour	46,695	41,982
Miles per car per day	68.4	57.0
Net tons per car-mile	38.1	36.5
Net ton-miles per car per day	1,701.0	1,318.6

Delaware, Lackawanna & Western—This road showed the following increases in 1943, as compared with 1940:

	1940	1943	Per Cent Increase
Gross ton-miles (thousands)	9,167,308	14,288,849	55.9
Net ton-miles (thousands)	3,640,771	6,717,082	84.5
Freight car-miles (thousands)	230,318	318,496	38.3
Freight train-miles	4,341,431	4,785,850	10.2
Freight locomotive-miles	5,567,286	6,916,520	24.2
Gross tons per train-mile	2,134	3,053	43.0
Gross tons per locomotive-mile (Frt.)	1,647	2,066	25.4
Gross ton miles per train-hour	37,351	42,338	13.4
Net tons per loaded car	23.6	32.0	35.6
Net ton-miles per car per day	59.0	96.1	62.9

Denver & Rio Grande Western—In 1943, the Rio Grande's gross ton-miles aggregated 12,527,138,000, an increase of 15 per cent over 1942 and of 122 per cent over 1929. Volume in 1943 included special problem movements of local traffic, such as an unprecedented amount of coal in Utah and of peaches in Colorado. Utilization of rolling stock was at record levels, with net ton-miles per car-day up 9 per cent over 1942, nearly double the average for 1940, and more than double the average for 1929. This line is a vital link in the transcontinental railway system and, as such, has had to meet the impact of the unusual volume of traffic moving to the Pacific Coast. This has involved, among other things, a reversal of direction of the normal flow of loaded traffic.

Elgin, Joilet & Eastern—This line handled 46,701,973 revenue tons of freight in 1943, which was an increase of 0.4 per cent over 1942, while revenue train-miles decreased 7 per cent. Average tons per loaded car increased to 46.15 in 1943 and revenue tons per train-mile increased to 1,099, as compared with 45.24 tons and 1,054 tons, respectively, in 1942. There was an increase in the movements of agricultural and animal products handled in 1943, particularly in grain, meats and edible packinghouse products, while petroleum and its related products increased to 3,457,125 tons in 1943, which was 927,348 tons, or 37 per cent, more than in 1942. This interchange traffic around the Chicago terminal area was handled with new records for operating efficiency.

Erie—The Erie had the highest traffic density of any of the larger railroads in the Eastern area in 1943 and ranked third nationally in this respect, with 16,694,084 gross ton-miles per mile of road. The traffic in petroleum and its related products moving to the Eastern seaboard in 1943 increased 142 per cent over 1942 and 728 per cent over 1941. The following statistics reveal some interesting records made in 1943:

	1943	1942
Tons of revenue freight	56,292,013	50,037,587
Average haul per ton (miles)	283.68	252.80
Revenue ton-miles (thousands)	15,968,709	12,649,543
Gross tons per train	2,993	2,910
Net tons per loaded car	29.8	28.1
Miles per car per day	63.1	55.9
Net ton-miles per car-day	1,230	1,032
Gross ton-miles per train-hour	49,318	49,454

Great Northern—The year 1943 completed a half century of transcontinental transportation on the G. N. A record 18,574,596,000 revenue net ton-miles were handled, which is an increase of 11 per cent over the preceding years and almost 17 times that of 1893. The movement of grain loaded on the line amounted to nearly 229,000,000 bushels, which is 30 per cent more than the 1916 records; this new record is due largely to the movement of old grain from farm storage during the first half of the year. Although gross ton-miles per train-hour decreased 2 per cent in 1943 compared with 1942, largely due to lengthening schedules, there was an increase of 5 per cent in train load and net ton-miles per car-day rose to 1,231, a new high record and an increase of 15 per cent over the 1942 performance.

Green Bay & Western—While this railway is handling a materially increased traffic, the effects of its complete rebuilding in the years prior to the war are such that it is one of the few Class I railways that still has excess transportation capacity.

Gulf, Mobile & Ohio—Gross ton-miles on this road totaled 9,354,747,000 in 1943, which is an increase of 6.8 per cent over the former high mark of 1942 and of 53.8 per cent over the highest prewar peak of 1928. Other 1943 statistical comparisons with 1928 follow:

	1943	1928
Gross ton-miles per train-mile	2,223	1,466
Net ton-miles per train-mile	1,087	651
Gross ton-miles per train-hour	39,494	19,413
Net ton-miles per train-hour	19,311	8,595
Number of cars per train	47.7	38.3
Freight train-hours	236,868	314,244
Number freignt engines	111	218
Number switch engines	47	65

Illinois Central—The more than 56 billion gross ton-miles handled in 1943 set a new high and was an increase of 7.1 per cent over the previous record year of 1942. This traffic was hauled with a decrease of 2.3 per cent in freight train-miles, compared with 1942, which feat was accomplished mainly by increasing the gross trainload from 2,461 tons in the previous year to 2,716 in 1943. Other peak records follow:

	1943	Per Cent Increase over 1942
Net ton-miles (1,000)	26,579,804	11.2
Net trainload (tons)	1,275	14.7
Gross ton-miles per train-hour	42,643	9.9
Cars per train	61.2	6.8
Miles per freight car per day	67.1	6.3
Number of freight trains	258,112	5.2

Outstanding among the commodities handled in 1943 were 444,892 cars of petroleum and petroleum products, of which 231,755 were District No. 1 oil for the Eastern seaboard. Speed in handling this commodity was increased more than 12 per cent, with 164.8 miles per tank-car-day in 1943 compared with 146.7 miles in 1942.

Kansas City Southern-Louisiana & Arkansas—The Southwest is a vital area for military installations and the demand for wartime transportation is unsually great

in this section. The K. C. S.-L. & A. met these demands and, in addition, have comprised an important route for symbol oil trains moving to Eastern destinations.

Lehigh & Hudson River—In addition to serving an important local territory, this line supplies a bridge route between eastern Pennsylvania and the important gateway to New England at Maybrook, N. Y. It continued throughout 1943 to handle large amounts of bituminous coal en route to New England, as well as other important wartime traffic.

Lehigh Valley—In 1943, this road carried 39 million tons of freight, surpassing the previous year's record by 6.3 per cent; this output was 22.7 per cent greater than the best previous record, made during World War I. The 1,026,575 cars handled in 1943 represented an increase of 5.9 per cent over the number handled in 1942; of this number, 220,160 cars of petroleum and its products were moved East, an average of more than 600 cars per day. Although mine labor unrest affected anthracite coal output, 249,002 cars of both anthracite and bituminous coal were handled during the year.

Louisville & Nashville—In 1943, revenue freight cars handled aggregated 1,863,981, an increase of 0.6 per cent over the previous year, 11.7 per cent higher than in 1941, 28.6 per cent greater than in 1940 and 42.8 per cent more than the prewar year of 1939. The number of cars handled has continued to increase so far in 1944, with the month of January showing 10.4 per cent increase over the comparable month of the preceding year. The volume of coal hauled increased in 1943 as compared with 1942 primarily on account of the six-day week inaugurated in the mines in February, 1943.

Minneapolis & St. Louis—Freight car utilization, both as to load and time elements, and train movement, by maintaining speed with a greatly increased load, developed the following over-all effects on the 1943 performance, compared with 1939:

	1943	Per Cent Increase over 1939
Per cent loaded to total car-miles	73.2	13
Net ton-miles per car-mile	25.3	51
Tons per loaded car	34.5	33
Miles per car per day	44.0	24
Freight train-miles (1,000)	1,781	13
Freight train-hours (1,000)	126.8	13
Net ton-miles (1,000,000)	1,568	74
Net ton-miles per train-mile	894	57
Net ton-miles per train-hour	12,510	57
Train-miles per train-hour	14.0	no change

Minneapolis, St. Paul & Sault Ste. Marie—During 1943, the gross ton-miles handled by the Soo line increased 6.2 per cent while train-miles increased only 1.15 per cent. This railway is an important ore carrier and this important tonnage was handled without delays in 1943. The important international traffic between the United States and Canada handled by the Soo moved on fast schedules. The Soo is also one of the most important wheat carriers in the Northwest.

Missouri-Kansas-Texas—Outstanding in the Katy's 1943 performance was the 173.4-mile average daily movement per serviceable locomotive, which is much larger than the daily average for all railroads. Setting new records on the Katy were also the average car-miles per serviceable freight car per day, reaching 93.9 miles in 1943 compared with 72.0 in 1942 and 59.9 miles in 1940, increases of 30 and 57 per cent, respectively. Greater utilization of equipment resulted in increasing the average load per car from 22.98 tons in 1937 to 33.39 tons in 1943 which, compared with 1937, released about 276,000 cars for use elsewhere. In the handling of trainload oil shipments from the Southwest to the East, the Katy maintained and shortened the scheduled time over its lines by two hours.

Missouri Pacific—Through the installation of C. T. C. over one complete main-line division and the installation of Diesel-electric freight power during 1943, this line has been able to meet the impact of the increased wartime traffic and has, among other things, been one of the outstanding carriers of symbol oil trains. Revenue ton-miles on this line totaled 25,497,492,000 in 1943, compared with 21,200,195,000 in 1942, an increase of 20.3 per cent—and 1942 was in itself a record year. Moreover, this volume was handled at an average charge to the shipper of 0.917 cents per ton per mile. During the year, the M. P. installed 951 seventy-ton hopper cars and 100 fifty-ton flat cars.

Nashville, Chattanooga & St. Louis—The N. C. & St. L. has been called upon to handle such unusual shipments as sulphuric acid, toluol and ammonia, in addition to its regular wartime job of serving as an important bridge route between the Southeast and northern and western destinations. Many military installations requiring highly efficient service are located on its lines. As part of its job of aiding in feeding the nation, this line with its connections worked out new schedules in 1943, which resulted in the delivery of Florida fruits and vegetables to the Mid-West from 12 to 24 hours earlier than heretofore. The N. C. & St. L. has also participated in unusual movements of petroleum and gasoline, both commercially and for Army use.

New York Central—This road moved more freight more miles in 1943 than ever before and the volume, measured by net ton-miles, was 11 per cent larger than in 1942. The operating ratio was 67.60, the lowest since 1916 and slightly lower than the ratio of 67.83 in 1942. This road maintained a low ratio of bad order revenue freight cars, thereby contributing to the maximum utilization of equipment. The percentage of such cars requiring heavy and medium repairs at the end of the year was down to 2.9 per cent of ownership. Despite continued heavy demands upon motive power, it was also possible to maintain a comparatively low percentage of locomotives awaiting general repairs at shops and, at the end of the year, this percentage was 2.6. As one of the country's vital traffic arteries, serving a virtually complete cross-section of American industry, the N. Y. C. has played a major part in the nation's wartime transportation.

New York, New Haven & Hartford—The following statistics compare New Haven's volume of traffic in 1943 with that of the pre-war year of 1939:

	1943	Per Cent Increase over 1939
Gross ton-miles excl. loco. (1,000)	14,244,167	81.8
Freight train-miles	6,241,921	54.6
Total freight car-miles (1,000)	337,647	56.5
Gross ton-miles per train-hour	32,877	14.9
Trainload (tons)	2,317	17.6

Freight traffic continues extremely heavy in 1944, the volume handled in March being the largest in New Haven's history. The problem of supplying wartime transportation to intensely industrialized southern New England has been solved efficiently by this road.

New York, Chicago & St. Louis—An all-time high in traffic movement was reached by the Nickel Plate in 1943 with 11,625,340,147 revenue net tons, a total which is 11.5 per cent greater than in 1942. Average loading per car of 30.9 tons and average haul 286 miles also set new high marks. One of the large factors in this record volume of traffic was the movement

of petroleum and its products to the East coast, the handling of which amounted to a little more than 13 per cent of the total tonnage of freight carried by the Nickel Plate. Tank cars primarily engaged in this service averaged 249.7 miles per car per day on the Nickel Plate during 1943. Some of the other important high records for the year follow:

	1943	Per Cent Increase over 1942	1941	1929
Freight car-miles (1,000)	596,946	2.2	39.7	44.7
Gross ton-miles (1,000)	26,211,862	5.8	50.3	77.2
Average miles per car per day	96.0	8.0	25.5	93.2
Freight train-miles	10,374,487	2.1	36.4	29.4
Freight train-miles per hour	18.4	1.1	1.6*	29.6
Locomotive-miles per loco.-day	186.5	0.6	16.0	41.1

* Decrease

New York, Susquehanna & Western—This railway not only serves the northern New Jersey industrial area but also is a bridge route for important through traffic, such as coal for New England and oil.

Norfolk & Western—Measured by net ton-miles per mile of road per day, the N. & W. has for some years had the greatest density of freight traffic of any American railroad more than 350 miles in length. In 1943, its average net tons per mile of road per day reached an all-time high of 26,246, compared with 24,940 during the previous year. A new all-time high figure of 59,756 average gross ton-miles per freight-train-hour was also attained. Gross ton-miles for 1943 totaled 37,427,393,000, an increase of 2.9 per cent over 1942 while net ton-miles likewise reached a new high, with 20,433,533,000 which exceeded 1942 by 916,604,000. Revenue coal handled in 1943 reached a record total of 54,401,971 net tons, which was largely due to the withdrawal of numerous vessels from coastwise service, causing a diversion of the movement of this commodity to an all-rail route and resulting in the handling of approximately 7,500,000 net tons of coal.

Other important high marks set in 1943 on the N. & W. were the average load per car of 48.1 net tons and the 51.8 miles per freight car-day, compared with 46.6 and 49.5, respectively, in 1942.

Northern Pacific—Comparing operating performance in the two wars, the total of 15,888,922,420 net ton-miles handled in 1943 was 48.07 per cent more than the N. P. handled in 1918, and the train-mile total of 11,705,574 in 1943 was 6.25 per cent less than in 1918.

Gross tons per train-mile of 2,654 in 1943 represented an increase of 63.93 per cent over 1918, while the 1943 transportation ratio was 26.46, as compared with 36.44 in 1918. Net ton-miles handled in 1943 were 19.03 per cent greater than in 1942, and 59.71 per cent greater than in 1941.

Pennsylvania—The vast scope of operations of this railroad are indicated by the fact that operating revenues (freight and passenger) for 1943 reached the all-time record for an individual American railway of $979,773,155, an increase of $141,298,532 over 1942. The increase in freight revenues alone amounted to $50,168,364. During the year, preparations were made for still further increasing the already huge capacity of the system. Expenditures for maintenance of way and structures increased $21,648,568, while maintenance of equipment cost $16,536,644 more than in 1942.

Pere Marquette—The volume of traffic on this road in 1943 reached a new high figure of 5,767,570,906 revenue ton-miles, an increase of 32.5 per cent over the figure for the previous high year of 1942, 72.2 per cent more than 1929 and 106.3 per cent greater than World War I year of 1918. Freight train-miles increased only 16.6 per cent over 1942, as compared with an almost doubling of revenue ton-miles, an achievement that was brought about by an increase in the average tons of freight per loaded car-mile to 32.8 and an increase in average haul from 222 miles in 1942 to 254 miles in 1943. While the number of carloads of stone, sand and gravel decreased 4.1 per cent in 1943, compared with the previous year, there were substantial increases in the other three principal commodities handled, namely, merchandise, bituminous coal and petroleum and its products, with the number of cars of petroleum and related products increasing 57.6 per cent. Freight traffic density reached 2,923,842 revenue tons per mile of road, an increase of 35.6 per cent over 1942.

Pittsburgh & West Virginia—The job this railway is doing locally and as a part of a through route to the East is indicated by the fact that gross ton-miles were 82.5 per cent greater in 1943 than in the last normally good year—1940. Net ton-miles were 106.3 per cent greater; revenue tons carried were 75.7 per cent greater; and revenue tons carried one mile were 106.5 per cent greater.

Reading—In serving 65 active mines in Pennsylvania, the Reading handled 13,280,644 tons of unprepared anthracite coal to preparation points, an all-time high. In addition, 14,397,312 tons of prepared anthracite were handled. This total of 27,677,956 tons represented 28 per cent of the total tonnage handled by the railway. Bituminous coal, all received from connecting lines, amounted to 23,739,802 tons, or 24 per cent of the total traffic. Thus, the coal handled by the Reading in 1943 amounted to 51,417,758 tons, or 52 per cent of its total tonnage. All-time high operating records were established in tons carried one mile, 9,222,955,350; in net tons per train, 1,290; and in net tons per car, 40.73.

Richmond, Fredericksburg & Potomac—This 116-mile double-track line handled a daily average of 103 trains—46 freight and 57 passenger—during 1943. In January, 1944, this average rose to 104 trains per day; then to 106 trains per day in February. A maximum of 131 trains were operated in one day. Tons of revenue freight hauled amounted to 14,111,257, an increase of 21 per cent over 1942, which was the previous record year. The total for each of the three-month quarters of 1943 exceeded the totals for the entire years of either 1933 or 1934. In one month, 50,355 loads were hauled, containing 1,271,040 tons of revenue freight.

St. Louis-San Francisco—In the first 11 months of 1943, the Frisco carried 7.9 per cent more tons of revenue freight than in the comparable period of 1942, with a corresponding increase of 28.2 per cent in revenue ton-miles, which later reached the figure of 8,530,844,767, whereas freight train-miles showed an increase of only 14.0 per cent. Other important increases are as follows:

	First 11 Months of 1943	Per Cent Increase Over 1942
Average haul	285.20	18.8
Average ton-miles per mile of road	1,862,937	27.9
Average ton-miles per train-mile	733.53	11.0
Average miles per car per day	66.48	14.9

St. Louis Southwestern—Gross ton-miles for 1943 were 13,988,895,763, as compared with 5,085,020,309 in 1939, the last year when this railway was unaffected by defense or war traffic. This represents an increase of 175.1 per cent. For the same years, gross ton-miles per train-mile were 2,141 and 1,668 respectively, an increase of 28.36 per cent; the per cent of loaded car-miles to the

total was 65.46 and 63.58 per cent respectively, while the average miles per car per day rose from 68.5 in 1939 to 106.1 in 1943, an increase of 54.8 per cent. In addition to a wide variety of other high-speed traffic, the Cotton Belt is handling over 300 cars of oil daily in symbol service between Shreveport or Pine Bluff and the Mississippi river gateways.

Seaboard Air Line—Serving many military camps and other wartime installations, the S. A. L. has shown large increases in virtually every factor of traffic and operation. Using 1938 as a basis in each case, net ton-miles increased 191.2 per cent in 1943; net ton-miles per mile of road per day increased 200.9 per cent; locomotive-miles per locomotive-day increased 84.4 per cent; net ton-miles per train-mile increased 53 per cent; net ton-miles per loaded car-mile increased 44.6 per cent; net ton-miles per freight car-day increased 87.2 per cent and average miles per car per day increased 19.8 per cent.

Southern—The many war plants and military installations in the territory served by the Southern have more than doubled the traffic handled by that line within five years, as shown by the following ton-mile figures:

	(Millions)
1938	6,250
1939	7,250
1940	8,000
1941	10,500
1942	13,500
1943	15,333

The increase in operating efficiency has matched the increases in traffic. Locomotive utilization increased from an average of 33,179 miles in 1938 to 43,863 miles in 1942, and to 44,242 in 1943. Average tons of freight per train in the same years were 433.14; 566.96 and 607.64 tons respectively. The average load per freight car rose in the same years from 19.55 tons to 27.32 tons and to 29.06 tons. In 1943, the percentage of bad order locomotives on the Southern was only 7.33 per cent and the percentage of bad order freight cars only 1.37 per cent.

Southern Pacific—The S. P. experienced a sudden increase in traffic in the last quarter of 1940, which was of such magnitude as to bring the 1940 ton-miles total above that of any previous year. This traffic, created by defense production, continued heavy until it was succeeded by war production and each succeeding year has established a new high record for ton-mile volume. As a matter of fact, the S. P. traffic load for nearly every day in 1943 was greater than the traffic of peak days in peacetime years. Net ton-miles of revenue freight in 1943 were 2½ times the volume of 1939, the last year before defense or war production affected S. P. traffic and the increase continues, as is indicated by the fact that net ton-miles handled in the first two months of 1944 were 9 per cent greater than in the comparative period of 1943. To handle this traffic, the S. P. has acquired much new equipment. Since January 1, 1939, orders have been placed for 170 steam and 130 Diesel-electric locomotives. A total of 9,489 freight cars have also been acquired in this period and 500 gondola cars are on order for 1944 delivery.

Tennessee Central—Besides serving a local territory this railway also provides a bridge route across central Tennessee between Knoxville and Nashville, which presents additional traffic capacity where it is needed.

Terminal R. R. Association of St. Louis—In 1934, an all-time high of 1,816,895 loaded cars of revenue traffic were handled by the T. R. R. A. This is 6 per cent more than in 1942 and 85 per cent over 1939, the last year unaffected by the war program. Naturally, the handling of empty cars also increased proportionately on this busy terminal interchange line. The above total includes 369,681 loaded tank cars of oil handled speedily through the St. Louis terminal; during 1943, the T. R. R. A. also handled 371,781 empty tank cars in return movement.

Texas & Pacific—In addition to being an important link in a Transcontinental route, this railway also handles large quantities of oil in symbol trains, many of which originate on the T. & P. Despite the fact that traffic has continued to increase, the T. & P. has maintained a continuous increase in average freight train speed in the last four years.

In 1943, gross ton-miles handled rose to 13,444,240,000, as compared with 11,958,019,000 in 1912, while the average freight train speed moved up from 18.5 to 18.6 m.p.h. At the same time, average miles per car per day increased from 68.2 to 77.9, while there was a decrease of 4 per cent in empty car-mileage and an increase of 11 per cent in net tons per train.

Toledo, Peoria & Western—Serving as a bridge line between eastern and western roads and avoiding the Chicago terminal, this line has supplied important extra capacity and rapid movement for shipments between the East and the West. In 1943, this line handled the heaviest traffic in its history—3,584,335 tons and 391,214,024 ton-miles of revenue freight. Gross ton-miles (excluding locomotive and tender) per train-hour rose to 31,957, while net ton-miles per train-hour were 16,071. All these figures are all-time high records.

Union Pacific—Revenue freight carried on this line increased 8,138,723 tons, or 17.9 per cent, in 1943 as compared with 1942, while revenue ton-miles increased 7,929,266,688, or 29.2 per cent. As a part of a vital transcontinental route, the U. P. played a most important part in wartime transportation.

Virginian—This line continues to be an important factor in the transportation of coal from a large segment of the West Virginia fields. Through the purchase of new locomotives and cars and by means of property improvements prior to the war, it has been able to handle its wartime traffic with steadily increasing efficiency.

Wabash—The volume of freight traffic in 1943, consisting of 31,817,862 tons of revenue freight, exceeded the tonnage of freight carried in 1942, the highest previous year, by 9.88 per cent, with a movement of 953,497 loaded cars, an increase of only 2 per cent, and with a decrease of 0.7 per cent in freight train-miles compared with 1942. Other increases in 1943 over 1942 are as follows:

	1943	Per Cent Increase over 1942
Revenue ton-miles (1000)	9,741,393	14.5
Revenue ton-miles per mile of road	4,069,988	14.6
Revenue tons per loaded car-mile	29.23	9.1
Revenue tons per train-mile	1,059.22	15.3
Average haul per ton (miles)	306.16	4.2
Loaded freight car-miles (1000)	333,238	5.0

Western Maryland—This railway serves as a part of an important through route between the East and the West, on which fast schedules are maintained. It also serves as a large carrier of coal from the West Virginia fields. In 1943, all records were broken for operating efficiency in this dual capacity. In addition, the W. M. supplies transportation to an important Chesapeake Bay port.

Western Pacific—At a time when the demands of traffic to the Pacific Coast have been extraordinarily great, the W. P., as the western section of a vital transcontinental route, has been an important factor in handling wartime tonnage.

Modern Signaling Speeds Freight Shipments

Capacity of Tracks Is Increased by the Latest Types of Signaling

War traffic shows shortcomings of out-moded timetable and train order authorization of train movements

MODERN signaling is reducing the overall time of freight shipments by minimizing the time lost when trains are waiting on passing tracks and when cars are being classified in yards. By thus saving time that otherwise would be lost, signaling helps to increase the average overall time speed of cars more nearly to the road speed of freight locomotives. By this means, cars, locomotive and tracks are utilized more efficiently. These benefits have been more widely recognized during the war than heretofore, because of the necessity to expedite shipments, regardless of the enormous increases that have occurred in the volume of traffic awaiting movement. In the postwar period, further reductions will have to be made in operating expenses and in the overall time of trains between termini to meet the competition of other forms of transportation. In attaining both of these objections, modern signaling has much to offer.

An Outmoded Method

The advantages of modern locomotives that will pull longer trains at higher speeds, and the necessity for heavier rail and better track over which to operate these new trains are readily recognized by railroad managements. These same men, however, may hesitate to accept the responsibility for making radical changes in long established practices for authorizing train movements.

A case in point is the antiquated method of authorizing train movements by timetable and train order. Under this system, if no extra trains are operated and all scheduled trains are exactly on time, all is well. However, if any train is running late or if extra trains are to be operated, the dispatcher must issue written train orders to authorize trains to move at variance with the timetable. These orders must be delivered to the engineman and conductor of every train concerned, at stations in advance of those where meets or passes are to be made. Therefore, the orders must be planned, transmitted and delivered perhaps an hour or more prior to their execution. In the meantime, if some train does not make the time expected, other trains are also delayed because there is no ready means for changing orders quickly enough to correct the delays.

As war time traffic has increased, the situation on extended sections of single track lines has grown worse and worse. With traffic of 30 to 40 or more trains daily, dispatchers have simply not been able to issue orders fast enough. As a result, trains were delayed in yards waiting for orders; other trains pulled up to stations and stopped to wait for orders. In some instances enginemen received so many orders that constantly changed authority that they became confused and had to stop their trains and study their orders to determine whether to proceed. Other enginemen, in order to be sure, have taken siding and waited, although later analysis of the conditions made evident the fact that time was available for the train to advance one or more stations.

Some trains spent more time waiting than running,

and as a result have not arrived at their terminals before the expiration of the 16-hour limit. In such instances, new crews have to be sent to these trains. On one division, each of certain freight trains has been assigned double crews when leaving the terminal so that when one crew had worked its allowable time, the second takes charge.

In brief, on numerous extended lines of single track, the old practice of authorizing train movements by timetable and train orders has been the cause for serious delay to important war time traffic. The best of locomotives and tracks cannot be used effectively unless means are available for authorizing trains to move when time and track are available.

Getting Maximum Use of Power and Track

Centralized traffic control provides a solution for these various forms of train delays. It comprises a system of power machines for operating passing track switches, and semi-automatic signals at these switches for authorizing trains to (1) Stop, (2) Proceed to the next station, (3) Enter the siding, or (4) Depart from the siding and proceed to the next station. The power switches and signals are controlled from one or more central points, as for example on one project, where one control machine controls an entire engine district 175 miles long. As ordinarily installed, these projects include intermediate automatic block signals which serve as approach signals and to permit following trains to occupy the same station-to-station block.

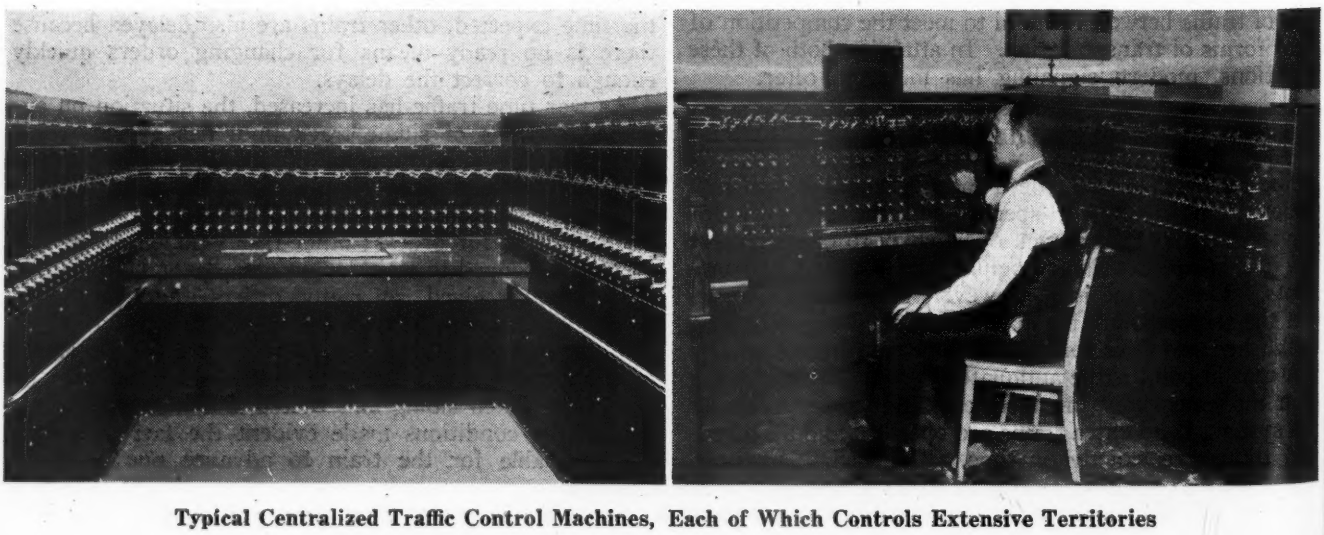
There is nothing new about centralized traffic control at this time, the system having been installed to a limited extent on numerous roads, starting in 1927 and expanding until a total of about 2,700 track miles had been equipped in the United States prior to the war. One of these projects included an entire engine district, 105 miles long, but the remainder of the installations were comparatively short sections. As the war traffic increased so rapidly, it became evident, especially on many sections of single track, that the installation of centralized traffic control provided the only logical means for increasing capacity rapidly enough to meet the requirements.

The first efforts on some roads were directed to extending existing centralized traffic control to include all of an engine district or at least all of the single track on such a district. As a result, C. T. C. is now in service, or under construction, on large mileages, as for example on 285 miles between Dotsero, Colo., and Helper, Utah, on the Denver & Rio Grande Western. The Union Pacific has completed the installation of C. T. C. on 175 miles of single track between Yermo, Cal., and Las Vegas, Nev. Construction is under way to extend the project 125 miles from Las Vegas to Caliente, Nev., and consideration is being given to further extensions to Salt Lake City, Utah, a total distance of 621 miles from Yermo. On the Louisville & Nashville, C. T. C. was recently completed on all of the single track on the entire engine district between Montgomery, Ala., and Mobile, 172 miles. Similarly the Missouri Pacific now has either single track with C. T. C. or double track on the entire 323 miles of the Arkansas division between Poplar Bluff, Mo., and Texarkana, Ark. The Southern Pacific has several long installations of C. T. C. and two more under construction. On the Nashville, Chattanooga & St. Louis, C. T. C. is in service or under construction on the principal sections of single track between Nashville, Tenn., and Atlanta, Ga. The Atchison, Topeka & Santa Fe has C. T. C. installations under way on the single track portions of two divisions. Many other projects, too numerous to mention here, have been completed during the last two years or are now under construction.

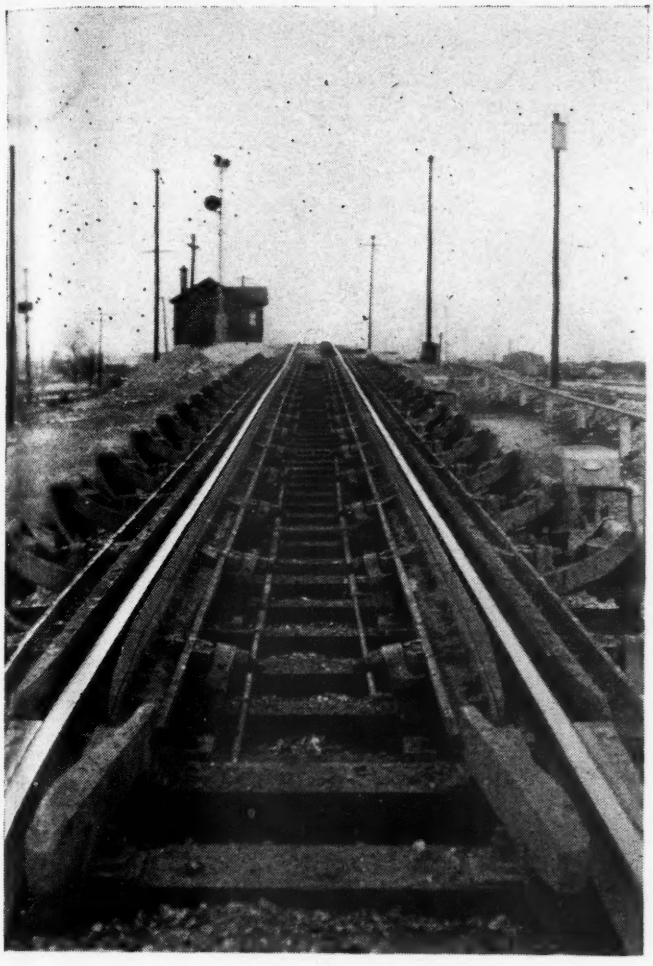
For many years, trains have been operated in either direction on one or more tracks of multiple track lines, with the movements authorized by traffic-direction locking between interlockings. This practice permits two or more tracks to be used by trains moving in the same direction while making run-around moves so that all trains are kept moving rather than stopping the slower ones on sidings while the faster ones pass. This practice has been extended on some roads during the last year. The same result has been attained on other roads, as for example on the Rock Island, by installing centralized traffic control with signaling for train movements in either direction on both tracks of extended sections of double track, three sections totaling 85 road miles having been completed this year between Chicago and Rock Island, Ill.

The Savings in Train Time

The benefits effected by centralized traffic control in saving train time vary because of differences in local conditions, such as grades and layouts of passing tracks, but in general, the installation of C. T. C. on a busy single track line will save an average of about one minute per mile for each freight train. On one project 175 miles long, the average saving amounts to three hours for each



Typical Centralized Traffic Control Machines, Each of Which Controls Extensive Territories



Car Retarders Expedite the Operation of Freight Classification Yards

freight train. On another district 85 miles long, the saving is 1 hour 14 minutes for northbound trains, and 1 hour 49 minutes for southbound trains. On a 125-mile installation, a saving of two hours for each freight train is credited to the C. T. C.

On many territories, benefits are evident also in other ways. A reduction of an hour or more in the road time of trains allows that much more time to turn the locomotives at terminals, and to assign them to other runs, thereby relieving a shortage of power, which is often a factor in reducing delays to trains which otherwise would be held in yards waiting for locomotives.

Of the many important factors to be considered in railroad operation today, the uppermost objective is to keep trains moving at the maximum permissible speeds. A most exasperating situation is to have a train ready to depart, and an idle section of track available, but no means for authorizing the train to move at once. Centralized traffic control solves this problem.

Facilitating Yard Operations

When considering the overall time of a freight car in transit between shipper and consignee, time lost in freight classification yards is just as important as that lost on the road. Here again, modern signaling offers power switch machines to operate yard switches, and car retarders to control the speed of cars when they are passing down the hump and into the classification tracks.

About 40 large yards in the United States were equipped with power switches and retarders before the war; two large yards have been so equipped within the last two years, and another is now under construction. In 11 of these yards, special communication is provided by means of which the humpmaster at the hump can talk to the engineman of the locomotive pushing the cars up to be classified.

As an example of the operation of a car retarder yard, a train of 110 cars, with a average of 1.4 cars per cut, was classified in 23 minutes, or at the rate of 5.2 cars per minute, with a humping speed of 2.6 m.p.h. Under different circumstances with reference to the number of cars in each cut, and a smaller precentage of loads, the average speed may be increased to 3 m.p.h. or more.

The power switches and retarders for an entire yard can be operated from one or perhaps two towers so that only a few trained men can handle the operation of the yard. For this reason, it is practicable to keep such a yard in service 24 hours daily, thereby classifying all trains soon after arrival. This permits traffic to be dispatched in trains without the delay which might occur if the yard were not in full operation at all times.

Another important consideration at this time of acute labor shortage is the fact that, if power switches and retarders had not been installed in some 40 of the most important classification yards in the United States, it would now be impossible to employ enough capable switchmen and car riders to handle the traffic moving through these yards properly. Thus the development and installation of these facilities have been a major signaling contribution to the success of rail transportation as a factor in winning the war.

More Signaling When War Ends

In the postwar period there will be increasing demands for further reductions in terminal-to-terminal train time as well as for reductions in operating expense, as means for meeting competition with other forms of transportation. Signaling can contribute to both of these objectives.

A logical procedure will be to install complete centralized traffic control on all major single track lines that are not now so equipped. An important consideration is to adapt the design to the operating requirements. With C. T. C., fewer passing tracks are needed. Likewise, fewer intermediate signals are required because head-on protection need not be provided by the intermediates. The C. T. C. control affords a means for establishing direction of traffic so that, with coded track circuits, no line control circuits are needed. On two projects now under way, the C. T. C. code control is to be superimposed on existing telephone wires and no other line wires are required except in station limits. These developments reduce the cost and increase the possibilities of installing C. T. C.

On single track lines handling a moderate volume of traffic, as for example 12 to 15 trains daily, the primary need may be to eliminate the delays inherent in the timetable and train order operation, which can be done with C. T. C.-controlled semi-automatic signals at the passing tracks, including track circuit protection throughout on all main track. On such projects, the desirability of installing power switch machines and intermediate signals other than distant signals depends on local circumstances. Several developments of this character, which are in effect remotely controlled manual block, are being considered and one project is under construction.

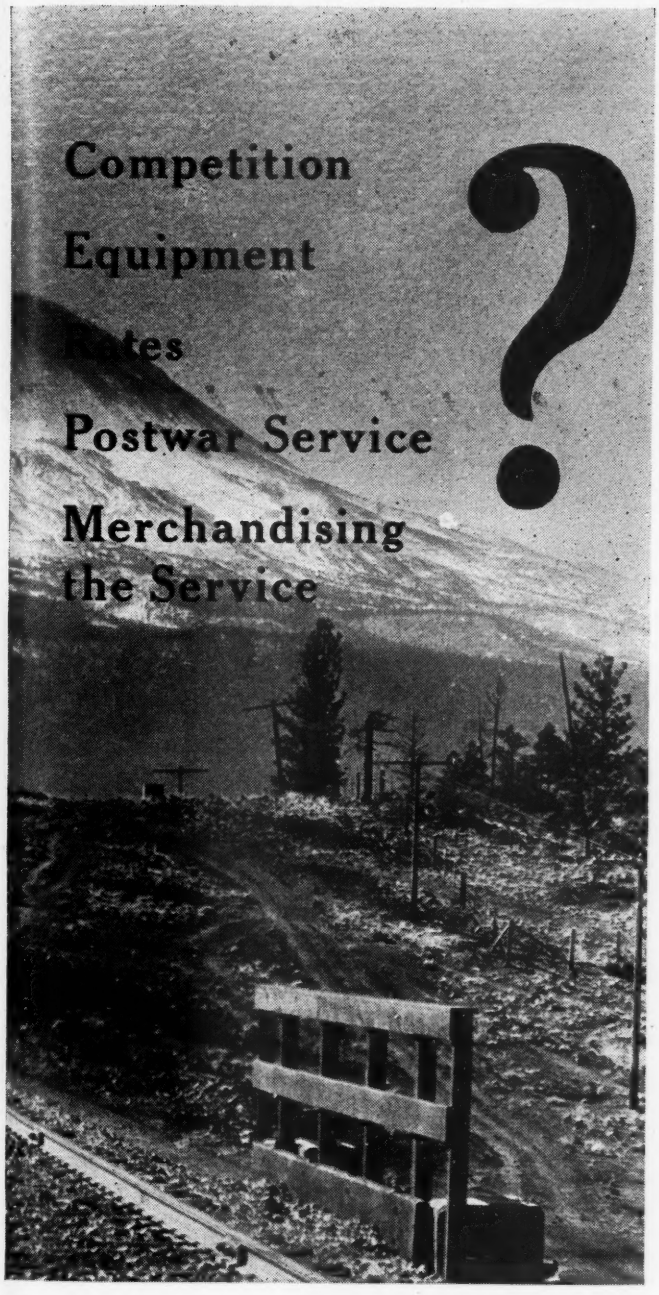
A general conclusion, therefore, is that modern signaling facilities are an important aid in moving today's wartime freight traffic, and, furthermore, in the postwar period more extensive applications of signaling will help to reduce train time as well as operating expenses.

THE railway executives of America are busier than ever before in their efforts to direct the handling of the nation's wartime transportation. Nonetheless, they would be remiss in their duty toward their country if they were not giving thought also to the vital reconstruction period that will inevitably follow the war. Any failure to provide postwar industry with the mass transportation which only the railways can deliver would be nearly as disastrous as failure to supply wartime transportation itself.

To obtain a cross-section of executive thinking on this important subject, the *Railway Age* has interviewed a carefully selected group of 20 presidents and traffic executives of outstanding freight-carrying railways in every section of the country. The railways were selected with care to give the best overall coverage and to present a truly nation-wide expression of opinion. These interviews covered the entire field of freight service, but the principal subjects under consideration dealt with competition, equipment, rates, postwar service and merchandising of railway service in the postwar period.

However, before considering the innovations and ways and means of handling postwar traffic, some estimate is necessary as to what the volume of such traffic will be. The line of revenue ton-miles for the last 25 years follows a course on a chart virtually identical with that of gross national production. Even under the abnormal production of wartime, this characteristic has persisted. In view of this, an assumption that the two factors will continue in the same relationship after the war seems well-founded.

Economists have estimated that, with full employment, gross national production after the war will aggregate about $166 billion. Correlating this figure of production with ton-miles, a figure of about 662 billion revenue ton-miles is arrived at as the potential railway traffic. This compares with actual revenue ton-miles of 638 billion for 1942, of 727 billion for 1943, and a forecast of 760 billion for 1944. But the wartime figures include traffic that will probably go back to the steam-



Plans of executives for postwar freight service reveal many innovations to meet needs of shippers

ship lines as soon as they can return to normal operations. This includes oil, coal for New England and a percentage of the transcontinental and Florida perishable traffic. Taking all of these factors into consideration, and assuming that the figures of gross national production in the postwar period are a sufficiently accurate prognostication, it would appear that immediately after the war the railways will be called upon to handle traffic somewhere between 500 and 550 billion revenue ton-miles per year. This compares with 475 billion revenue ton-miles handled in 1941 and 443 to 447 billion revenue ton-miles handled in 1926-29. Considering the volume of deferred railway purchases and the wearing out of equipment under the pounding it has been getting, the conclusion is inevitable that, to handle this volume of freight, a huge railway purchasing program is inevitable.

Such factors as the foregoing must be taken into consideration in evaluating the executive opinions which follow. Excerpts from these interviews are quoted at length later. A summation of the opinions brings out the following salient features under the five headings mentioned:

1. *Competition.* The executives are confident of their ability to cope with truck competition. They do not anticipate that such competition will be any more severe after the war than it was immediately before the war. Waterway competition is the subject of much concern, particularly as to coastwise and transcontinental traffic via the Panama Canal. Airplane competition for freight is not being overlooked, but it is felt that the cost factor will prevent such competition from becoming serious for some years to come.

2. *Equipment.* The majority of the executives are interested in lightweight freight equipment and are studying developments closely. They feel that the existing differential in cost between carbon steel and alloys is such as to make the use of such equipment uneconomical as yet, but are hopeful that developments in metallurgy will receive enough impetus during the war to bring about reductions in price that will lessen the differential materially. The increased speed of freight movement planned for the postwar period, plus the pounding that equipment is taking now, will require a large replacement program.

3. *Rates.* Opinion is about equally divided as to whether the present rate structure is to be preserved. Many new ideas, including trainload rates, dual-minimum rates, part-carload rates, etc., are being studied. The opinion is practically unanimous that greater flexibility in railway rate-making and a simplification of tariffs and classifications are necessary.

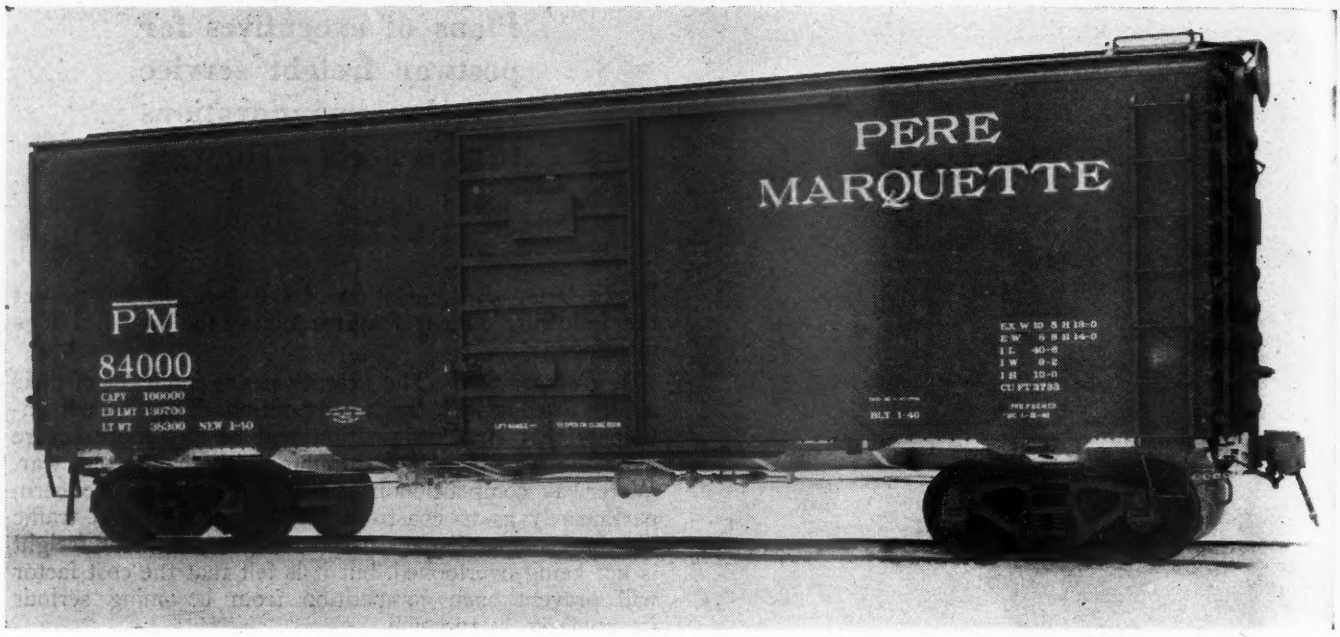
4. *Postwar Service.* Overnight fast trains are being planned for both carload and merchandise traffic, as well as faster long-distance schedules. A very large expansion in co-ordinated rail-highway service is accepted by practically all of the executives, to increase the speed and flexibility of the service, particularly to local points. A greater study of the shippers' needs is also planned.

5. *Merchandising the Service.* Careful selection and better training of the railway sales forces is indicated after the war. A continuation of the present institutional advertising is also expected. Development of traffic by study of the industrial, agricultural and mineral possibilities of the territories served will be continued on an enhanced scale.

Competition

Opinion is divided as to the severity of postwar competition, but all of the executives interviewed plan to do everything within their power to retain as much of the present traffic as they can. This is shown by the following statements.

"Truck competition will undoubtedly be severe as soon after the war as gasoline and rubber can be obtained, but eventually I look for sound economics and operating costs to catch up with this industry. It has



Much Interest Is Expressed in the Postwar Possibilities of the Lightweight Freight Car, Such as the Above, Which Weighs 38,300 Lb.

had a fast growth, having been subsidized and, in addition, having been subjected to high-pressure salesmanship on the part of the truck manufacturers and suppliers of gasoline, tires and other automotive accessories. We cannot hope to compete in the matter of price on transcontinental traffic with the ships operating via the Panama Canal. We now have a marked advantage over ships in the matter of speed. We should increase this advantage by stepping up the speed of our freight trains, while at the same time decreasing our disadvantages from the standpoint of cost by means of some such device as train-load rates."—*Vice-president, transcontinental railway.*

• "It now seems obvious that the railroads' competition from other forms of transportation—highway, water and air—will be intensified in the postwar period. Highway carriers and water carriers will present the principal competition for freight traffic for, while cargo planes may be expected to be in general use after the war, many aviation experts agree that 'freight trains in the sky' are still some distance in the future. Air competition will be limited to long-haul high-grade freight traffic, which might perhaps more appropriately be termed express traffic. Technical developments are rapid and may, of course, completely alter the picture, but cargo planes must be designed with a greater pay load and operate at less expense than anything now in prospect to present much competition for freight traffic."—*President, southeastern railway.*

• "It is a peculiar thing that under the lax control that existed over highway transportation during the years of its inception, the mistakes of the industry were never charged to the industry itself. Under the far more strict regulations which now exist, much of the wildcatting will no longer be possible, and it will remove the most annoying highway competition from which the railways formerly suffered. Furthermore, the increasing unionization of the trucking industry and the increased costs of operation other than for labor, will continue after the war, so that, while highway competition will still be the principal thorn in the railways' side, conditions will be so far stabilized that the task of meeting this competition will be by no means as difficult as it has been in certain periods in the past. The railways can compete very well with organized trucking activities, but they could not compete, particularly on l.c.l. traffic, when there were thousands of operators who were, through ignorance, quoting rates far below their cost of operation."—*President, eastern railway.*

• "Highway trucks will afford the most competition for postwar freight traffic. Still, as a sizeable truck operator myself, I am not too worried as to this competition by reason of the fact that I do not anticipate a return to the unrestricted gypsy trucking of the prewar period. Unless there is a depression following the war, I do not expect the gypsy trucks to play the large and damaging role in the postwar period that they did in the prewar period. Although our line is paralleled to a certain extent by waterways, we have never felt this competition particularly seriously, and, in view of the uncertain navigation conditions on the waterways in our territory, despite the huge sums that have been spent on them, we do not anticipate any great amount of competition from waterways. Our studies convince us that the airplane cannot compete with the railroads for freight traffic for several years at least, on any economic basis. There are, of course, many hare-brained schemes for subsidizing airplane freight handling, but, unless such subsidies are carried to an absurd length, I do not anticipate any appreciable amount of air competition for postwar freight traffic for some years to come."—*President, midwestern railway.*

• "Airplane competition for freight will not amount to much after the war because there are very few commodities on which time is of such importance as to justify the tremendous differential in freight rates between airplane and railway transportation. Although the rate differential between railway and waterway transportation is nowhere nearly as great, the same principle holds good. I anticipate increasing and troublesome competition from the barge lines and the Panama Canal ships for this reason, particularly on bulk traffic. It has been my theory for some time that highway competition reached its peak before the war. The investigations of

my people convince me that the costs, particularly of labor, for truck transportation are going to rise shortly. Also, there was a definite trend noticeable before the war in the matter of legislation against truck lines and increasing their taxes, particularly in view of the manner in which they were ruining the country's highways."—*President, midwestern railway.*

• "We will face more active competition by water and highway than existed prior to the war. I don't see how we can avoid such competition for, especially on the highways, it is a 'natural'. Our traffic department is already studying the problem."—*President, western line.*

• "As a transcontinental line, we can look for vigorous competition after the war. The enormous numbers of ships now being built will be turned over to private shipping lines at low rates, and this form of subsidy will enable them to compete on transcontinental traffic through the Panama Canal to a much greater degree than before the war. The job that the railways did when these ship lines were forced to suspend operations will be fresh in the minds of the shippers for a short time, but the fact that, through subsidizing, these ship lines will be able to quote much lower rates than we could offer, will mean that much of this transcontinental traffic will again move by ship."—*President, transcontinental line.*

• "Inland waterway competition has always been our greatest problem and I look for this to continue in the postwar period. We have a number of ideas as to how best to meet this competition after the war, but it will always remain a thorn in our side. The trucks, in my opinion, are in for a bad time after the war. Their costs will be much higher than they have been hitherto, and a very large item in such costs will be for increased labor. Employees of the truck lines were getting extremely restive before the war and have obtained certain concessions to bring rates of pay and working conditions more on a parity with those of the railways. The truckers had all sorts of advantages over the railroads as to costs before the war but, except for obtaining free right of way, I do not look for anywhere near as great a disparity in trucking costs as compared to railway costs after the war."—*President, southeastern railway.*

• "Competition in transportation will be exceedingly keen after the war, but no railroad that is geared for action need be too fearful about serious loss of traffic. It may well be that we will have to better our present record of handling freight at a cost of less than one cent per ton-mile, but if this becomes necessary, as I think it will, I am sure that, with the lessons learned during the war, in the handling of mass transportation, the railways of this country can meet the challenge as a whole."—*Vice-president, traffic, midwestern railway.*

• "I cannot agree with those who regard postwar competition as something to be dreaded. My investigations convince me that, so far as freight traffic is concerned, the railways will be subjected to much less vigorous competition in the postwar period than was the case in the decade preceding the war. Airplane competition will not be a factor for many years. In the final analysis, however, regardless of what happens to our competing agencies of transportation, I cannot conceive of their handling freight at less than 0.9 cents per ton-mile, which is what this railway did in 1943. There just isn't any other form of transportation for distances of over 100 miles that can compete on a cost basis with this charge to its customers."—*President, southwestern line.*

• "In co-ordinated highway service, we feel that we largely have the answer to highway competition, but inland waterway competition will still be one of our principal headaches after the war. We do not feel that airplane competition will be of particular moment. We have given the subject considerable study but still do not feel that the 'flying box car' will be practicable for some years to come."—*Vice-president, traffic, southwestern railway.*

• "We expect a heightened competition for freight traffic after the war, which will come principally from the highways, for airplane transportation has not progressed sufficiently to bother us very much for some years to come in freight business. One of the many ways in which we can meet such competition is to maintain our physical properties and our rolling stock in the very best condition possible during the war, making such improvements as the shortages of materials will permit, and planning to put the railroad in better shape than it ever was before."—*President, eastern railway.*

• "While highway competition will give us competition after the war, it will be restricted in its operations to a more nearly economical haul, so far as distance is concerned. The growing resentment of the private motorist, as well as the complaints of the taxpayers regarding the destruction of the highways, will undoubtedly have their effects in restrictive legislation for the trucks. The gypsy truckers have created such a bad impression that public opinion is extremely vociferous against them. I do not anticipate too much difficulty from waterways, while the airlines cannot compete on a rate basis. I have followed their estimates as to the cost of handling freight very closely and the lowest figure I have seen has been 8 cents per ton-mile. As compared with the railway rates of about one cent per ton-mile, the conclusion is obvious. It is possible, of course, that technical improvements will lower air costs eventually, but I do not expect this for years to come."—*Vice-president, traffic, southwestern railway.*

• "We anticipate no difficulty in meeting highway truck competition after the war. Our company has operated a well co-ordinated railway-highway system for many years which has enabled us to render our patrons a highly satisfactory transportation service. We expect to continue this after the war and to refine and improve the service as new developments occur. While waterway competition will be keen after the war so long as shippers via waterways are relieved (through government subsidies) of paying rates sufficient to cover the cost of waterway transportation, the postwar emphasis will be upon speed and reliability, and the use of inland waterway transportation will be limited largely to low-rate commodities not requiring expedited service. Some traffic undoubtedly will be moved by cargo planes. We think the principal losses will be confined to high-rate express traffic, where the transportation rate is a relatively unimportant item as compared with the need for extraordinary speed. The cost of handling traffic in cargo planes will be several times higher than by railway express or freight."—*Vice-president, traffic, southwestern railway.*

• "I have not yet become excited regarding airway competition for freight traffic after the war. I anticipate the renewal of water competition, both coastwise and through the Panama Canal, but do not expect that it will be as severe as it was before the war, for the boat lines are facing rapidly rising costs that will limit their activities. I look for more active competition from the trucks than we have ever experienced."—*Vice-president, traffic, transcontinental line.*

• "After the war, the railways will be faced with more extensive competition than they have ever encountered before from sky fleets, giant trucks on superhighways, fleets of new coastal and intercoastal ships, war-built pipe-lines and government-nursed river carriers. Also, the cards will probably be stacked against us in regard to much of this intensified competition because the railroads will continue to pay all of their costs of doing business out of their own pockets, while other competitors in the air, over the highway, and on the water will continue to have the benefit of huge subsidies. To offset this, the railways will have the appreciation and the good will of the American people for having accomplished a gigantic wartime task superbly. This may result in fair treatment of the railroads by the agencies of government and perhaps eventual co-ordination of the various forms of freight transportation or, at least, some semblance of equality in the competitive situation."—*President, southeastern line.*

• "Highway transportation will undoubtedly offer the most severe competition after the war. Of course, waterways and pipe-lines, largely the latter, will get back the oil movement. I do not anticipate that cargo planes will offer much competition for at least a decade or two after the war."—*Vice-president, traffic, midwestern line.*

• "We have found that speed is a most potent factor in meeting competition. The postwar shipper will be geared to speed and since he will be in the driver's seat, speed is what the railways will have to provide if they are to meet competition. To make such high speed possible, we have been rebuilding our railroad for some ten years and have ambitious plans for continuing this at an accelerated pace, as soon as we are able to get materials, until we have the railroad in the best possible shape."—*President, eastern railway.*

What Kinds of Equipment?

The use of lightweight freight cars on an economic basis is awaited with interest and enthusiasm by most railway executives. The certainty that large quantities of rolling stock will be necessary immediately after the war makes this question particularly pertinent. Their opinions follow:

• "Theoretically and even logically, the use of lighter weight freight cars is indicated for the postwar period, but it must be remembered that at present there is a tremendous price differential between carbon steel and the lightweight materials. I am hopeful that the great progress made in the science of metallurgy during the war will enable the manufacturers to reduce the cost of lightweight metals to a point where the railways would be justified in paying the increased cost in order to secure the greater operating efficiency inherent in the use of cars of light weight."—*Vice-president, transcontinental railway.*

• "The movement of freight through terminals should be expedited by providing modern equipment and methods at transfer points. There will no doubt be marked changes in freight car equipment in the postwar period, and the principal changes I look for are reduction in weight and adaption of freight car equipment for higher speeds."—*President, southeastern railway.*

• "We now have several experimental lightweight cars on this railway. In my opinion, the tremendous development of the aluminum and alloy industries which has taken place during the war will enable a drastic reduction to be made in the price for commercial purposes after the war. If this is the case, I lean strongly toward the use of lightweight freight cars, as such cars as we now have on our railroad have proved eminently satisfactory; the only drawback has been the relatively high price of freight cars built of this material. I plan to make use of roller bearings in reducing operating costs in the handling of bulk freight, which forms such an appreciable part in this railway's tonnage."—*President, eastern railway.*

• "To my mind, it is a mistake to consider that something new and hitherto unknown is necessary for the postwar improvement of the railroads to meet competition. We have at our command now the weapons whereby the railways will be enabled to fight competition very effectively. The field of development of the lightweight freight car and of new specialties to permit faster operation of freight trains and improvements in motive power for the same purpose has hardly been entered. Research and tests have been made in plenty but there has been very little application of this knowledge to actual operations. By applying our present knowledge to postwar operations, I look for revolutionary developments in higher freight train speeds and lighter weight freight cars."—*President, midwestern line.*

• "We plan the active solicitation of less-than-carload freight after the war and have set up arrangements for the operation of overnight trains between large cities within 500 miles of each other. For this purpose, we are now purchasing new cars with special highspeed trucks and steel wheels and we plan to purchase more."—*President, midwestern railway.*

• "After the war, the railways are going to be forced to develop every possible economy in operation to offset rising labor costs. In freight service, this can be done very directly through the redesign of freight equipment to employ lighter metals and thereby reduce weight. We must be very alert to do this."—*President, western line.*

• "I look forward to the time when lightweight equipment will be economical for freight trains. Our studies do not indicate that this time has yet arrived, but we intend to follow the developments very closely to enable us to get in on the ground floor just as soon as the prices of such equipment can be brought to an economical level. We plan faster freight schedules, and the use of lightweight equipment, with the necessary specialties to permit highspeed operation of freight cars, would fit in very well with such plans."—*President, transcontinental line.*

• "We have only scratched the surface of freight train operation, so far as reducing costs is concerned, by means of improved equipment and specialties. Just before the war, experimentation along these lines had progressed to a point where it seemed likely that it could be translated into operating economies and, after the war, the car-building and railway supply industry, in co-operation with the railroads, will be able to seek such economies on a large scale basis."—*President, southeastern railway.*

• "If lightweight equipment for freight trains has been developed to a point where it is economical, I am heartily in favor of its use. I believe that lightweight metals will be developed and I am confident that the freight car of the not-too-distant future will be made of such materials, with attendant savings in the cost of han-

dling cars."—*Vice-president, traffic, midwestern railway.*

• "The present development of the lightweight freight car is not sufficiently advanced to justify our use of such cars in the immediate postwar period. This should not be taken to mean, however, that I am opposed to lightweight freight equipment. On the contrary, as soon as it has been proved to us that such equipment can be produced at costs to us that will be economically sound, and of such construction as to stand up in service, I shall be only too glad to take advantage of the economies inherent in lightweight equipment."—*President, southwestern railway.*

• "We are strong believers in the use of several types of loading devices. They have proved themselves on our railway and we expect to expand their use materially after the war, for the convenience of the shippers. As we see it, postwar passenger service will be handled largely in lightweight, streamlined trains, with most of the head-end business taken off such trains in order to increase their speeds by the avoidance of station stops, and to improve their schedules by adapting them to the passenger instead of to the head-end business. This will have a distinct effect on the operation of our fast freight trains. We visualize, say, second sections of the streamliners, which will handle the bulk of the baggage, all of the express, and, in addition, cars of l.c.l. merchandise destined to distribution points for handling from there to local stations by truck. Such trains will necessarily consist of lightweight freight equipment, supplied with all specialties for highspeed service."—*Vice-president, traffic, southwestern railway.*

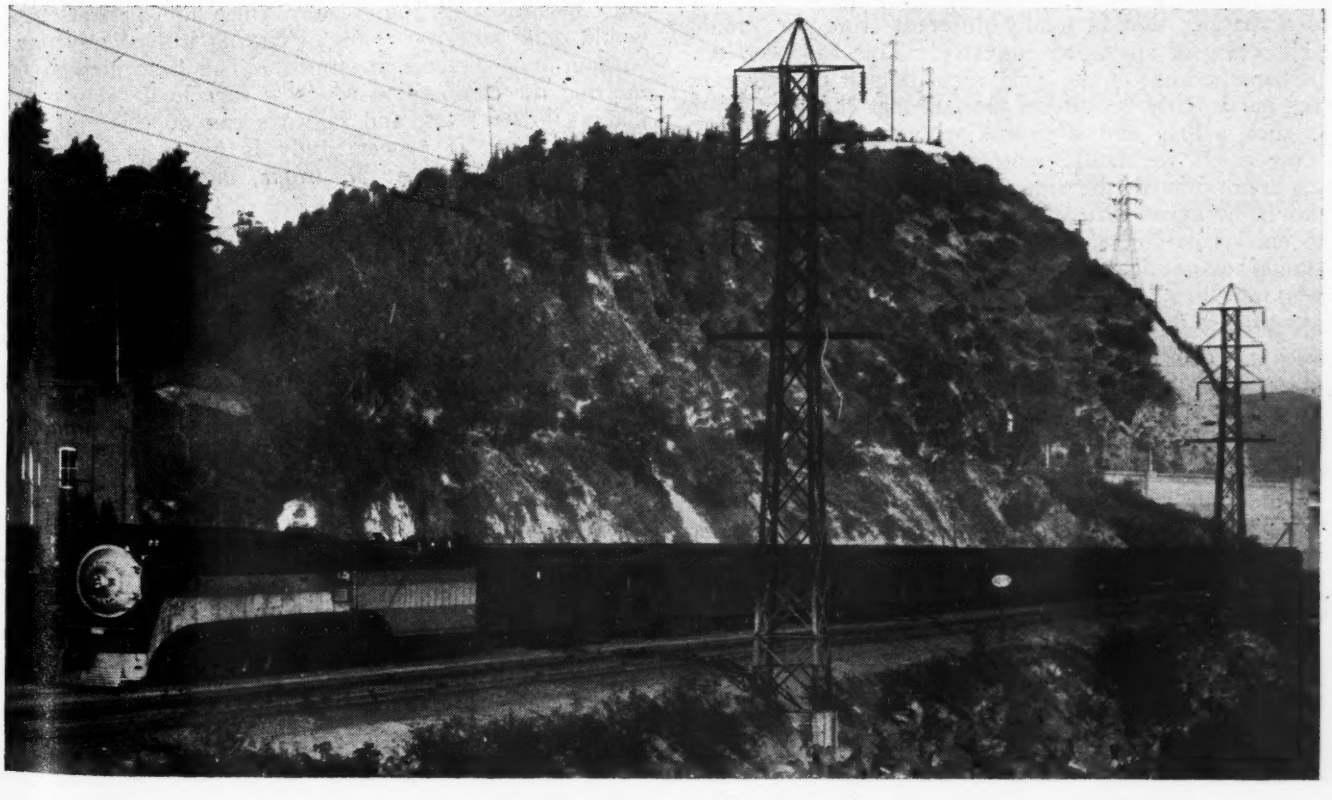
• "I am still of an open mind with regard to the type of freight car that will be most efficient after the war. Despite the fact that I am undecided as to the economy and efficiency of lightweight cars, I have very definite opinions as to the urgent need for the railways studying this subject, so that some decision may be arrived at soon. For this reason I have urged the A. A. R. to study this matter to the utmost of its ability. I have also established a committee on my own railroad to go into the subject exhaustively and I hope that with several agencies working on the problem, some definite conclusions will have been reached before the war is over."—*President, eastern railway.*

• "The lightweight freight car is coming just as surely as the lightweight passenger car and this will be a highly economical move. Even a cursory study of what shippers want develops that we are going to have to supply them with more special-purpose cars after the war (e. g., covered hopper cars, cars with loading devices, mill-type gondolas, container cars, etc.). All this means that the empty mileage will be increased, as is inevitably the case with all special-purpose cars. This, however, is an inevitable concomitant of supplying the shipper what he wants, which is what we will have to do to meet competition. I look for the savings to be obtained from the use of lightweight equipment to offset any additional expense incurred in the way of empty mileage. When I say that we shall need more special-purpose cars, I do not mean that standardization should be forgotten. Within certain groups of cars intended for similar purposes, the industry would be infinitely better off for complete standardization."—*Vice-president, traffic, southwestern railway.*

• "We expect considerable improvement in the design of freight equipment in the future, particularly in the use of alloys, brake equipment, nonharmonic springs, etc. There will be a tendency towards substantial decreases in the weight of freight cars through improvements in design and the use of highspeed trucks. When highspeed trucks and improved air brake equipment are installed, higher speeds will naturally follow."—*Vice-president, traffic, southwestern railway.*

• "We have made no plans yet for lightweight freight

The Executives Plan a Considerable Expansion of High-Speed Overnight Freight Train Services Like the One Illustrated



cars but expect to see a trend in that direction as new cars are required. As such cars are ordered, it is only natural that the designers will take advantage of the newer developments in materials. I do not expect, however, to see any widespread retirement of existing cars before their normal life expires."—*Vice-president, traffic, transcontinental line.*

• "After the war we will not be able to buy complete new rosters of locomotives, to revolutionize the design of our freight cars, or to overhaul the layout of our yards and terminals all at once. I anticipate radical and wholesale improvements in railway rolling stock and facilities, but the circumstances will require that such improvements be introduced gradually."—*President, southeastern line.*

• "The freight car of the future, when so many highspeed freight trains are planned, will have to be able to stand up under passenger-train speeds and should possibly be lightweight. We shall certainly need more special-purpose or specially-equipped cars."—*Vice-president, traffic, midwestern line.*

• "I have no means of telling accurately now what the future development of lightweight materials for freight cars will be, but I am thoroughly sold on heavy freight cars, particularly for the bulk movement which constitutes the greater part of our tonnage."—*President, eastern railway.*

What Rate Structure?

The greatest difference of opinion as to what should and must be done after the war exists with respect to the subject of rates. It should be remembered, however, that much research on this subject is now being conducted and, from the effective work so far accomplished, sound rate-making may be expected after the war. The opinions follow:

• "The slavish devotion of most railway men to the so-called rate structure seems to me to be one of the greatest evils in the railway business. We quote our rates in a manner that is totally different from the pricing philosophy of any other industry. This has been true perhaps because of the rigid regulation of railway rates and particularly because of the fact that changing a rate is such a long and laborious process. To meet truck competition, we should quote rates on shipments weighing approximately the same as a truckload and these rates should be lower than our regular l.c.l. rates. In order to encourage shippers to help us reduce our costs, we should quote dual-minimum rates, giving the shipper who is willing to load cars heavier some financial inducement for so doing."—*President, southeastern railway.*

• "I do not agree with those who are of the opinion that the present rate structure needs complete change and overhauling. The current rate structure is based on a study of the economics of American industry over a long period of years and this study was conducted by experts on the subject. Perhaps we need a general downward revision of rates to meet competition, but this should not be done without the closest study of the situation after the war."—*Vice-president, transcontinental railway.*

• "I am not particularly alarmed at breaking down the rate structure by making rates to meet competition. After all, there is such a thing as hanging on to outmoded rates which may preserve the rate structure but, at the same time, divert business away from the railways to competitors. I am not particularly impressed by the so-called dual-minimum rates. It would be my idea to encourage heavier loading by applying considerably higher minimum carload weights and, at the same time, recognize the value of heavier loading and encourage it by cutting the carload rates."—*President, midwestern railway.*

• "The only way in which I see that postwar competition can be met is through trainload rates. Giving the shippers a premium for heavier loading will also be desirable after the war. As a matter of fact, a considerable revision of the present rate structure seems essential if competition is to be met."—*President, midwestern railway.*

• "Our western lines serve a country which produces bulk shipments in large measure. Such shipments are particularly susceptible to waterway competition but, on the other hand, they are also susceptible to the application of trainload rates."—*President, transcontinental line.*

• "We shall have to make rates that will agree more nearly with the shipping unit of our competitors, namely, truckload weights. We cannot hope to compete successfully unless some such system as this is put into effect. We have conducted some experiments with dual-minimum rates. I still preserve an open mind on this subject, but our experience has not been such as to make me particularly enthusiastic. However, I have by no means given up hope that some method of this sort may be worked out to encourage heavier loading, which, as we have discovered during the war, brings costs down very materially and makes for efficient transportation. We cannot expect the shippers, however, to do this for our convenience unless we offer them some sort of financial inducement as well."—*President, southeastern railway.*

• "The present rate structure must undergo a considerable change. I am in favor of trainload rates, dual-minimum rates, and rates on quantities of material that approximate a truckload. However, each of these cases must be dealt with individually, since any blanket rules would only have the result of cutting railway revenues without any increase in traffic. The best method of meeting the competition which is sure to develop is by making lower rates, and railways can do this and still make a profit if proper study is given to operating methods."—*Vice-president, traffic, midwestern railway.*

• "The possibilities of trainload rates are being studied very thoroughly on this railway, and I have an open mind as to whether the principal objection that such rules ruin the nationwide rate structure is sound. Our investigations have not been completed, but I am personally inclined to the opinion that the railways of the country have let a great deal of business get away from them while they were clinging to what may well be an outmoded rate structure. We are also giving earnest consideration to the possibilities of making special rates on quantities of freight equivalent to the truckload rates of our highway competitors."—*President, southwestern railway.*

• "We have made considerable studies of all-commodity rates, part-carload rates, etc., which have been turned over to our newly created research department for working out on a scientific basis. We plan to preserve an open mind until the findings of the research bureau are made available to us."—*Vice-president, traffic, southwestern railway.*

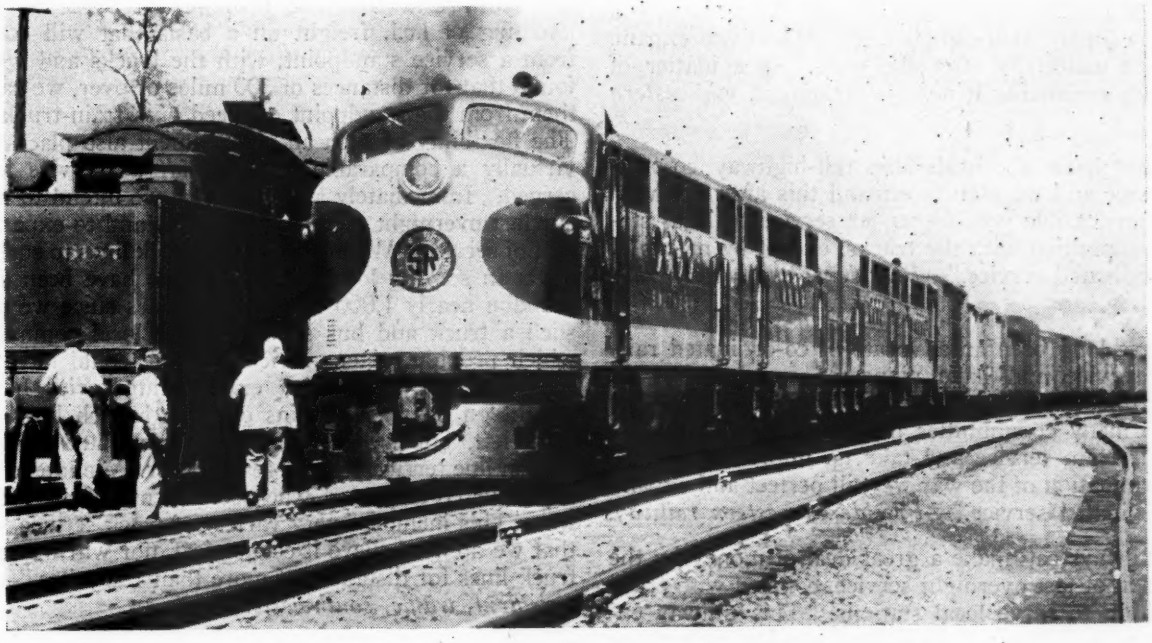
• "I am an ardent enthusiast for higher minimums and lower rates. Our experience during the war period, when shippers have been loading cars heavily, has corroborated this previously-held opinion. We hope to be able to raise the minimum weights per car to levels that will permit us to operate economically enough to make great savings as compared with prewar operation and to pass such savings along to the shippers in the form of reduced rates. This will serve a two-fold purpose; (a) to permit more efficient operation, and (b) to reduce our costs so that we may reduce rates, which, after all, will give us one of the most potent weapons with which to meet postwar competition."—*President, eastern line.*

• "All-commodity rates and part-carload rates are definitely indicated for the future and tariff simplification is one of our No. 1 postwar problems. A uniform classification throughout the country should be included and, most important, we should have standard rates all over the United States."—*Vice-president, traffic, southwestern railway.*

• "There will be a tendency to establish trainload rates on some commodities moving regularly between certain points in large volume. We expect to continue our 'all-commodity' rates, making such refinements or extensions as we may find necessary. We are somewhat in doubt as to the value of part-carload rates, as they quite often involve moving lightly-loaded cars. If quantity rates between l.c.l. and carload rates are necessary, they should be l.c.l. rates and not part-carload rates. It will be quite difficult to simplify tariffs, at least to the extent advocated by enthusiastic but inexperienced advocates of such procedure. Our whole economy has produced many thousands of rates which reflect adjustments necessary to meet the competition of communities, of commodities and of carriers. At the same time, tariff simplification is highly desirable and, while much has already been accomplished along this line, the rail carriers should continue to do whatever more they can in this direction."—*Vice-president, traffic, southwestern railway.*

• "We are studying our l.c.l. rates closely to see if we cannot simplify them. I see little advantage in the all-commodity rate idea but, on the contrary, fear that it will be made the means for breaking down the rate structure."—*Vice-president, traffic, transcontinental line.*

• "Trainload rates seem logical enough, but I am sure that, sooner or later, the I. C. C. will ban them as discriminatory. My own preference for new rates is the dual-minimum rates which supply a monetary incentive to the shipper to load cars more heavily. I also favor part-carload rates as giving us a basis on which to compete with the smaller minimums of the truckers. Tariff simplification is now under way and should be continued vigorously."—*Vice-president, traffic, midwestern line.*



Lessons Learned in the Stress of Wartime as to Locomotive Utilization Will Be Applied to Postwar Operations

Postwar Service

The direction that railway service takes after the war will determine, to a large extent, the ability of the railways to meet competition. The following opinions indicate that railway service will reach new high levels:

• "Steps to meet competition should take the form of complete modernization of facilities and services with schedules fitted, insofar as practicable, to best meet the needs of shippers and consignees. Such modernized service should be supplemented, where advisable, by coordinated highway service. At the same time, the railroads should, through their development services and otherwise, undertake thorough studies of shippers' needs and the solution of problems arising in connection therewith. Appropriate departments should likewise undertake thorough studies of loading methods, crating and packaging methods, etc., so that the shippers may realize the full advantages thereof."—*President, southeastern railway.*

• "We intend to make aggressive efforts to get as much l.c.l. traffic as possible after the war. We are engaging at the moment in studies looking towards faster overnight schedules and fast long distance schedules that will

beat the trucks by a large margin from the standpoint of time. During the emergency, American industry has been geared up to a very fast tempo and I am sure that the time element will continue to be a most important factor in the minds of the shippers, whether there is any reason for it or not, in the postwar period. This railroad is a large operator of trucks, both in co-ordinated service and for long distance inter-city service. My idea has always been that a railroad should supply a complete transportation service and, insofar as laws permit, this railroad will continue to supply such complete service and will expand this service materially after the war. As a matter of fact, we are expanding it now."—*President, midwestern railway.*

• "We now have a considerable rail-highway co-ordinated service and we plan to expand this after the war. There is no feasible way to render service to local stations in competition with the trucks, except by means of such co-ordinated service."—*President, midwestern railway.*

• "We have long been an advocate of co-ordinated rail-highway service and have pioneered in providing it. Through this means we have not only improved our service to many communities but have been enabled to reduce our train service and take up unprofitable lines. At the termination of the war we will perfect and expand this co-ordinated service."—*President, western railway.*

• "The railways can make a great deal of money by the continuation of fast overnight service, coupled with truck co-ordination to serve local stations. This railway entered the rail-highway co-ordinated service rather late but our experience with it has convinced us of its value and, in fact, of its necessity. We are expanding it now and plan to make it system-wide at the earliest possible opportunity."—*President, southeastern railway.*

• "We intend to continue vigorous solicitation of l.c.l. traffic. We do not plan running overnight trains of solid merchandise between any points on this railroad, but we do plan to increase the speed of our freight trains, handling both carload and less than carload traffic to points where the purpose as a solid overnight merchandise train would be served. Our plans for the expansion of our rail-highway co-ordinated service are already drawn up and they include a complete coverage of our system. This will have the effect of giving overnight service not only to the larger centers but also to the local stations along our line."—*Vice-president, traffic, midwestern railway.*

• "We have a fairly comprehensive rail-highway co-ordinated service, which we plan to extend to cover practically the entire system in the postwar period."—*President, southwestern railway.*

• "We have a large co-ordinated highway service now. Our experience with it has convinced us of its value. We shall certainly expand it materially after the war. It passed long ago out of the experimental stage and is now a highly important and integral part of our transportation system."—*Vice-president, traffic, southwestern railway.*

• "Our railroad is one of the largest operators of trucks in co-ordinated rail-highway service. Since we plan to solicit l.c.l. freight after the war with unabated energy, we shall continue to operate a co-ordinated service, which is the only feasible means whereby service can be given such freight that will equal or exceed that given by our competitors. We plan to extend co-ordinated service just as much as may be necessary to meet competition of the highway trucking companies and to go beyond them in supplying service to the shipper of this type of freight. Our overnight merchandise trains were so successful that we plan to continue them and increase their numbers."—*President, eastern railway.*

• "We are operating one of the biggest truck lines in the southwest. Its sole purpose, as I see it, is the handling of l.c.l. freight on a basis that will compete, from a service standpoint, with the trucks and we have found that for distances of 300 miles or over, we can beat them from the standpoint of speed on a train-truck basis. The flexibility of such an arrangement also places us on virtually a comparable basis so far as service is concerned. Immediately after the war, we intend to resume our fast overnight merchandise trains and to expand this sort of service. We are using our truck lines to such good effect in serving local points that we have been able to abandon nearly 1,000 miles of branches since we put on such a truck and bus service to the local communities, which provide better service than we could have given them by rail. We have experimented with handling freight on passenger trains on such branch lines as we have left, but we feel that truck and bus service for branch line territory is the real answer. We intend to expand our co-ordinated truck service materially after the war. This includes every variety of truck service, except that we do not believe it economical, nor will we operate, truck lines for distances of more than 150 miles."—*Vice-president, traffic, southwestern railway.*

• "We plan to restore our fast schedules of prewar days at the earliest opportunity, with fast overnight trains between important centers. By fast schedules, I mean just that, for, before the war some of our overnight freight service was faster than our passenger service. I regard this expedited service as an important means for holding freight traffic. We have long been one of the largest operators of trucks, and I expect this service to expand when we can again get equipment."—*Vice-president, traffic, transcontinental line.*

• "We favor the use of trucks in transfer service between freight stations and also in pick-up and delivery service, although the present exorbitant costs of such service must come down after the war."—*Vice-president, traffic, midwestern line.*

Merchandising the Service

The railways have been criticized for a lack of an effective sales program in the past. The following opinions show the steps they are planning to take to sell the service after the war.

• "The merchandising of railway service has by no means kept pace with the increasing efficiency in railway operations. We are giving this matter a great deal of study on this railroad and hope to arrive at some solution to the problem of securing better merchandising methods, as we feel that it is a definite weakness now that must be corrected."—*Vice-president, transcontinental railway.*

• "In the matter of general postwar planning, we are engaging in extensive research and have formed a department exclusively for this purpose. It is the duty of this department not only to conduct researches along the lines of studying the most effective materials for

freight-car construction, track construction, etc., but also to study sales methods in other industries and to apply as many of these as may be suitable to sales in the railway industry. However, in the final analysis, selling in the railway industry is largely determined by the type of service that the railways can and will render."—*President, eastern railway.*

• "The merchandising of railway freight service is quite different from merchandising any other commodity. Salesmen can be taught to create a very large additional market for washing machines, for example, but no amount of sales appeal will induce a shipper to ship more freight than is necessary in the conduct of his business. Therefore our studies and training of our freight solicitors have stressed throughout the necessity of doing a sales job that would bring as much freight as possible to the railways. We investigated a great number of sales methods practiced by other industries but find them largely inapplicable. Through the agricultural and industrial departments of the railway, some additional freight traffic can be created, but this is separate from the sales efforts, particularly of off-line traffic solicitors."—*President, midwestern railway.*

• "Before the war, we inaugurated a definite program of more careful selection and better training for our traffic solicitors. The benefits of this program were sufficiently apparent that we plan a continuation and an expansion of this type of sales training."—*President, midwestern railway.*

• "The selling of railroad service is a quite different matter from selling any other product, as we deal in service, which is an intangible factor. Our traffic solicitors speak the same language as the industrial traffic managers who are, in the main, ex-railway men and I do not concur in the opinion that railway sales efforts are archaic."—*President, transcontinental line.*

• "We have adopted an elaborate system of cadet training for our traffic solicitors. Classes are conducted for likely candidates and in every way possible we have attempted to give to our solicitors a training that will fit them to be alert and intelligent salesmen of railway service. In addition, we have trained all our employees who come in contact with the public on the telephone by means of classes and demonstration by experts in telephone courtesy. This system was in effect long enough before the war to show good results. It enabled the ambitious young man to secure in a relatively short time the training that would formerly have required years of experience."—*President, southeastern railway.*

• "For years we have been pursuing a policy of education and training of our traffic solicitors to remove them from the general run of railway freight solicitors, who merely pass out cigars. Our off-line men all have a close acquaintance with our railroad and we have imbued them with the idea that they are most definitely expected to render service of all kinds, as well as to take down car numbers of shipments routed over our line."—*Vice-president, traffic, midwestern railway.*

• "There are two cardinal principles involved in securing an effective railway sales staff. First of all, traffic solicitors should be selected and trained with far more care than has been the case in the past. Secondly, the spirit of intelligent and aggressive salesmanship must start from the top. I make it a point to know and frequently call upon all of the principal shippers on our railroad and as many of the smaller shippers as time permits. In my opinion, the railway president who does not devote a substantial portion of his time to assisting the traffic department in the solicitation of freight, just simply isn't doing his job."—*President, southwestern railway.*

• "By the proper merchandising and selling of service, we feel that competition can be met effectively. Institutional advertising on a greater scale than ever before would be of enormous public relations value to the railways and would, in addition, have value in the solicitation of freight. One advertising medium that has not been exploited sufficiently is the railway freight car. It could be made a traveling advertisement by the application of a little thought and paint."—*Vice-president, traffic, southwestern railway.*

• "In our elaborate system for training promising young men for traffic and other positions on this railroad we have the answer for correct salesmanship of railway service. The deficiencies in railway salesmanship have in the past largely centered around insufficient information as to such services given traffic solicitors. This is inexcusable and is one of the things on which we lay the greatest stress among our executives."—*President, eastern railway.*

• "We have impressed upon our traffic solicitors that they are service representatives for the duration. This will be excellent training for them in the manner in which we intend to use them after the war, namely, as service men in addition to salesmen; they will have instructions to study the shippers' wants and needs very thoroughly and report their findings to us for translation into action in the way of supplying the service that the shipper really wants."—*Vice-president, traffic, southwestern railway.*

• "Postwar development will require more intensive study of marketing conditions; enlarging sales forces in districts that have enjoyed a rapid wartime growth; establishing new agencies in districts which have developed and are expected to retain a substantial share of their gains; more intensive co-operation and co-ordination of sales forces with industrial, agricultural and research branches of the service."—*Vice-president, traffiic, southwestern railway.*

• "We are going to great pains today to get across to our solicitors the fact that they are not merely contact men or order-takers but are selling a service just as realistically as any salesman sells any other product. We want our representatives to become real service agents for our shippers."—*Vice-president, traffic, transcontinental line.*

• "Merchandising freight service depends largely upon the character of the solicitation force. We are starting from the bottom in being far more careful in selecting solicitors who have a natural ability in salesmanship. Candidates for such positions are given an overall training in solicitation work. I have examined the sales plans of many industries, but the railway industry is really a composite of all industries and such sales plans have never seemed to me to fit our specialized needs. I look upon the sales force as the heart of any merchandising plan and believe that better selection and more effective training are crying needs."—*Vice-president, traffic, midwestern line.*

• "The provision of high-speed service is the best means of merchandising what we have to sell after the war. Our off-line traffic force has been relatively small, but we plan to increase it after the war to supply a greater coverage of the shippers and receivers in the country."—*President, eastern railway.*

Fixed Properties [illegible]

Railways' [illegible]

In Spite of Shortages of New Rail and Other Essential Track Materials, Traffic Has Been Kept Rolling at Unprecedented Peaks

Improvements in tracks, bridges, yards and service facilities must go forward if progress in transportation is to continue

THE engineering and maintenance forces of the railways have done and are continuing to do a remarkable job in keeping war-time traffic on the move. Coming from behind in the condition of their tracks and many other elements of the fixed properties at the start of the war, and in spite of serious handicaps presented by shortages in materials and labor, they have thrown in their support with other departments to make possible the outstanding performances of the railways as a whole. But the war is not over —the tremendous job of the railways is not completed. The year 1944 will be one of desperate struggle. The call for a further increase of 10 per cent in the efficiency of railway operation will, in turn, call for still greater car and train loads, further increase in car and locomotive utilization, still higher train speeds, and faster movements through every terminal, and these will in turn make greater demands on tracks and structures.

Will this new challenge to the railways be met? The answer is "yes," just so long as every department does its part, and there is full recognition by government agencies, by the railways themselves, and by shippers and the public in general, that all progress in railway transportation must, of necessity, be predicated upon a sound roadbed and track structure, supported by adequacy in all of the other elements of the fixed properties, including bridges, buildings, yards, terminals, signals and fuel and water facilities. Just as the finest military equipment of the present war is slowed or bogged down by defective or inadequate roads and unstable terrain, or by inadequancy in supplies or servicing facilities, so the finest railway equipment in the world—as is to be found on the American railways—can be brought to a walk, or completely immobilized, through failure to provide a sound roadbed and track structure over which to operate it, and adequate auxiliary facilities with which to keep it serviced and in repair.

Roads Have Not Dozed

Railway engineering and maintenance officers recognize these facts as fundamental. This was demonstrated following World War I in the large rehabilitation programs of the railways in the Twenties; it was demonstrated again during the depression years, when many of the improvements in train speeds, schedules and service were made only after specific improvements in and additions to the fixed properties had been made; and it has been demonstrated unmistakably once more in their efforts of the present war years to keep the fixed properties abreast of the record demands that have been made on them. With a continuation of this recognition by all concerned in the months ahead—making available to these officers the money, materials and manpower essential to the task—the record-breaking demands on the railways for the remainder of the war will be met, and, equally important, the railways will be adequate to the certain heavy tasks that will confront them in the postwar period. To achieve this goal will require broad-gage thinking on the part of all concerned. While never overlooking the immediate demands of the battle front, sight must never be lost of the fact that there can be no successful battle front without adequate lines of communication and supply on the home front. Interpreted in terms of the fixed properties of the railways, this demands that they be brought into step where not

Hold Key to Pace of War and Postwar Effort

This article gives attention to the large and vital place of the fixed properties in the railway transportation picture, tells of the strenuous efforts that have been made by the construction and maintenance forces to keep abreast of needs, and suggests continuing interest in these facilities as the key to further improvements in train operation and service to the public. It points out that only as these facilities keep pace, can the railways stay abreast of war and postwar demands.

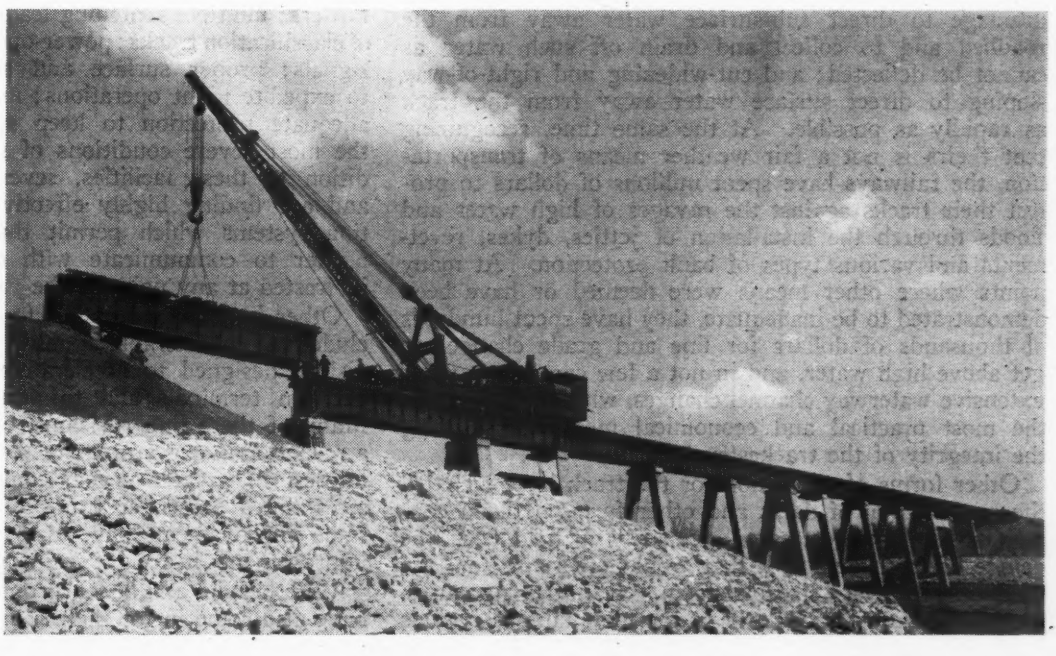
in step already, and that they be kept in step until victory is won. Allowed the necessary materials, equipment and manpower, this will be assured.

It is a fact too well established to be denied, that during the depression years, the railways as a whole lived off the "fat" built into them during the Twenties, and then dipped heavily into their basic resources as continued scant revenues called for retrenchments all along the line. It is well remembered too, that in their struggle for survival in that period, which saw the development of the streamliners and universally stepped up freight service, the railways gave first consideration to improvements in their train service equipment—turning their attention to the fixed properties only as these improved services demanded.

But those were dark days of emergency for the railways. If the war had come upon the country then, it would have been a sorry railroad plant that would have been called upon to take up the load. It was fortunate for both themselves and the country, that the "worm had turned" prior to December 7, 1941—that the railways, at the first signs of upturn in business in the late Thirties, began pouring funds into the rehabilitation of their fixed properties. That this took place, is seen in the fact that from the low of approximately $88,500,000 in 1944, expenditures for additions and betterments to roadway facilities reached $186,916,000 in 1937, and have averaged $159,448,000 annually since that year, including expenditures amounting to $198,301,000 in 1943.

Likewise, expenditures for maintenance of roadway and structures, which had dropped to a low of $322,286,000 in 1933, were, with increased traffic and earnings, and subsequently with the defense and war effort of the country, increased to approximately $495,594,000 in 1932, to $603,088,000 in 1941, to $796,419,000 in 1942, and to nearly $1,107,000,000 in 1943, the largest amount ever spent by the railways in any one year for the maintenance of their fixed properties. While a breakdown in the 1943 figures, showing the amounts spent for the different classes of maintenance of way and structures work, is not yet available, it is known that, as in recent years, increases were made all along the line—for roadway maintenance, for rail, for ties, for track laying and surfacing, for bridges, for buildings, for water supply, etc.—in every case representing the largest expenditures for these specific classes of track and structures maintenance since before the depression.

Behind the larger expenditures of recent years, and equally as significant as the increased expenditures themselves, are a long line of technological and practical developments in railway construction and maintenance practices—developments that are manifest not alone in the quantity of work done, but in improved quality as well, reflecting themselves on every hand in further improved and safer rail transportation. To most people,



Bridges, Whether New or Old, Whether on Main Lines or Branch Lines, Must Be Adequate to the Traffic They Must Bear—And Must Be Maintained Adequate

the railroad rail of today is much the same as that of a decade or more ago; although the fact is that through improved design, larger section, improved chemical composition, improved mill practice and improved methods of laying track, it is a substantially different product. In addition to these factors, the last decade has brought controlled-cooled and Brunorized rails, a development in the interest of eliminating transverse fissures, and with it the mill hardening of rail ends to prevent the premature destruction of the rail at the ends through batter under the action of passing wheels.

Alert to the threat inherent in defective rails, especially the hidden transverse fissure, the railways have been making increased use of fissure detector cars, not only in the mileage of tracks covered, but in the frequency of testing as well. For example, in recent years many roads have doubled or trebled the mileage of tracks tested, and some of them are now repeat-testing at intervals as short as 60 days, where such tests in the past were seldom more frequent than semi-annually or annually.

Combined with these improvements in the rail itself and the greater care with which it is being inspected under traffic, the entire track structure has been strengthened progressively during the last decade through the adoption of stronger track fastenings of improved design, better grades of ballast and a deeper ballast section, and larger treated crossties. Adding to these features of the track structure itself in the interest of greater safety, improved riding quality and more efficient maintenance, is coming widely increased attention to stabilizing the roadbed through extensive bank restoration or widening projects, improved drainage, the driving of poles or cull ties into the roadbed, and the more recent development of impregnating soft subgrade with cement grout or asphalt.

Extensive Efforts to Protect Roadbed

With the greater recognition that excess water is the worst enemy of the track structure, increasing maintenance costs and causing thousands of slow orders that impede the speed of trains, the drainage efforts of the railways have gone far beyond the measures of earlier years, including today the enlargement of waterway openings under the tracks; deep ditching and subdrainage to direct sub-surface water away from the roadbed and to collect and drain off such water as cannot be deflected; and cut-widening and right-of-way sloping to direct surface water away from the track as rapidly as possible. At the same time, recognizing that theirs is not a fair weather means of transportation, the railways have spent millions of dollars to protect their tracks against the ravages of high water and floods through the installation of jetties, dykes, revetments and various types of bank protection. At many points where other means were deemed or have been demonstrated to be inadequate, they have spent hundreds of thousands of dollars for line and grade changes to get above high water, and in not a few cases have made extensive waterway channel changes, where to do so was the most practical and economical means of insuring the integrity of the track structure.

Other forms of protection for the track have included the construction of dams and other forms of flood control far up lateral streams, primarily to hold back the deluge of earth and rock that would otherwise foul the roadbed with every sizeable storm. Still other measures, found necessary particularly in the mountainous regions along the Pacific Coast, have included costly line changes to get way from eroding parallel river courses or side hill washes and debris cones that have engulfed the tracks periodically in the past. The railways in this and other areas have also expended huge sums to stabilize slopes and prevent slides, and, where other means of overcoming these hazards have proved impracticable, many of them have installed detecting fences or other devices linked to the track signal circuits to warn of any dangerous conditions which might develop.

Expand Many Facilities

Combined with all of these means of increasing the safety and continuity of rail transportation, some of the most extensive work of the railways since the onset of the war has been to expand the capacity of their facilities to meet the demands of war traffic. This has been reflected in the enlargement, rearrangement and lengthening of yards to provide increased capacity and greater flexibility in the movement of cars through them; in the improvement of interchange facilities; in the construction, extension and relocation of hundreds of sidings and passing tracks; in the enlargement and improvement of engine terminals to insure quicker and more dependable handling of locomotives; in the installation of thousands of miles of improved signaling, including centralized traffic control, interlocking and remotely controlled switches; and in the construction, alteration and enlargement of car and locomotive shops.

So imperative is the need for improved yard and engine terminal facilities that more than $20,000,000 was spent during 1943 for yard improvements alone, while about $10,000,000 was spent for the improvement of engine terminals.

Basically, the modern classification yard calls for an adequate number of receiving and classification tracks of sufficient length to take care of the greatest demand, and, where a departure yard is found desirable, it is essential that it have sufficient tracks of adequate length to permit the proper and ready checking of trains for their next road run. But far and beyond these basic elements of the modern classification yard, such yards under intensive operation require modern methods of handling waybills; equipment for the rapid formulation and distribution of switching lists; rapid communication systems; humps of proper height and grade; car retarders; multiple switching leads to the different groups of classification tracks; power-operated switches; adequate signals; proper surface and sub-drainage; floodlights to expedite night operations; and, in northern climates, adequate protection to keep switches operative under the most severe conditions of sleet and snow. In addition to these facilities, several roads have installed and are finding highly effective amplified communication systems which permit the yardmaster or humpmaster to communicate with engine crews or others interested at any point in the yard.

Other improvement projects of recent years have included a considerable number of line and grade revisions designed to accelerate the movement of traffic between terminals and to permit greater train loads. Many of these line revisions, especially those involving a reduction in curvature, have been made primarily in the interest of greater speed, comfort and safety for the streamlined passenger trains of recent years, but these same improvements have made possible equally marked improvements in freight train operation.

With heavier and faster locomotives and trains, bridges have also come in for their share of attention, especially

because of their restricted maintenance during the depression, and because of the coming into prominence of many branch lines with trebled or quadrupled peacetime traffic, and the necessary re-rating of the bridges on these lines to carry present traffic and loads. As a result of these conditions, bridge strengthening and renewal programs have become major items of work on many roads in recent years, and promise to continue as such in the year ahead.

Water and Fuel Stations Get Attention

Still other improvements that are being made constantly in the fixed properties of the railways, and realized little, if at all, by the public, are those with respect to locomotive water and fueling facilities—improvements without which the more intensive and extended locomotive runs in effect today between terminals and service points would be impossible.

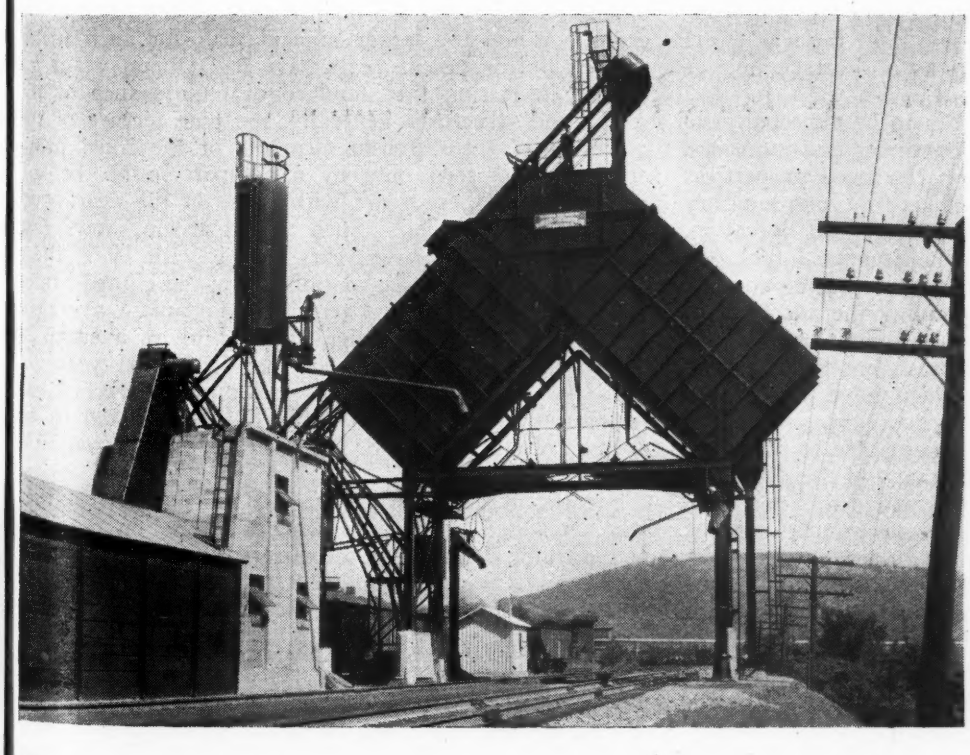
In recent years, the railways have been using in excess of 430 billion gallons of water yearly for locomotive boiler purposes, and during the present war period this has increased materially. Much of this water is not unfit for boiler use in its natural state, but much of it is totally unsuited without treatment of some kind as is evidenced both by the vast amount of sludge and scale-forming solids removed from locomotive boiler water each year, and by the serious record of engine failures that existed prior to the widespread adoption of water treatment. As a result of their efforts to improve the quality of their water supply, the railways have more than doubled the availability of their power for road service, have cut shop operations materially, and have reduced road delays due to engine failures to only a small fraction of what they were prior to the adoption of adequate water treatment. At the same time, to reduce delays to locomotives in taking water, many roads have increased the delivery rate of their more important water columns up to 3,500 to 5,500 gal. per min., compared with 1,500 to 2,000 gal. per min. only a few years ago, and effecting savings of as much as 10 to 12 min. per water stop.

And as in the case of water stations, the railways have not overlooked the importance of their fueling stations. In some cases the capacity of these stations has been increased. In other cases completely modern equipment has been installed, and in not a few instances plants have been relocated entirely to permit the refueling of mainline trains without cutting off the locomotives or detouring trains from the main track. At the same time, a number of stations have been built during the last few years where locomotives can refuel, take on sand, replenish their water supply and drop ashes, all simultaneously at one spotting—all in the interest of reducing road time and of increasing the efficiency of train operation generally.

To continue all of these various types of improvements during the last two years in the face of serious shortages in materials, has called for the exercise of the greatest ingenuity on the part of engineering and maintenance officers, and they have risen to the occasion and have accomplished results that were thought impossible only a few years ago. Thus, as never before, they have modified designs, conserved materials and incorporated greater efficiency in every operation. They have shifted from steel to timber construction and back to steel again as changes in the material situation have demanded; have adopted concrete construction, without reinforcing, where adequate, and where other materials were not available; have developed or adopted substitutes for many of their requirements; and have salvaged, reclaimed and reused practically every class of material for which they have had need.

Methods Adapted to New Conditions

No less a factor in the success with which engineering and maintenance officers have met the needs of the times has been the almost complete revolution which they have brought about in construction and routine maintenance of way and structures operations and methods in the interest of higher standards of work, speed, and minimum interference with train operation. In this revolution, which has been stimulated in part by the serious labor shortages of the last two years, highly specialized gangs equipped to the limit of their availability with power tools and units of work equipment, have assumed most of the larger and more arduous tasks. From little more than a start in the use of modern work equipment 20 years ago, the railways now have an investment in such equipment of at least $120,000,000, having expended more than $50,600,000 in the last six years alone for approximately



At Many of the Newer Service Stations of the Railroads, Locomotives Can Refuel, Take on Sand, Replenish Their Water Supply and Drop Ashes, All Simultaneously at One Spotting

34,000 units, including the record purchase of 8,500 units in 1943, at a cost of about $12,300,000.

In the interest of minimum restrictions to work operations by traffic and minimum interference to traffic by work operations, work equipment purchases in recent years, to an increasing extent, have been of the off-track type, including such units as draglines, cranes, electric generators, air compressors, mowing machines, automobile trucks, tractors and a wide variety of grading and ditching equipment—all operated under their own power, entirely independent of the track. That this development has not been a still greater factor in aiding the construction and maintenance forces in completing essential work without interference with traffic, has been solely because of limitations and freeze orders on such equipment by the War Production Board, making it impossible for the railways to secure the number and types of units desired.

These developments in the use of power tools and work equipment have not been confined to the track forces, because like these forces, the bridge, building and water service forces are making every possible use of power tools and machines to carry out their work expeditiously and without delays to traffic. On important lines today, routine bridge repairs and many complete renewal projects are being carried out without slow orders through the use of off-track or readily demountable machines.

This objective is also being effected through the construction of more substantial falsework, and, where necessary, by the building of runaround or shoofly tracks to standards that will permit nearly normal train speeds.

Job Still Far From Completed

Such is the record of the effort and achievement of the engineering and maintenance forces in recent years in construction, in maintenance, in methods to overcome shortages in materials and labor, and in practices to prevent interference with train movements. But the job is not completed; tracks, bridges, yards, engine terminals, and shop and fuel and water facilities are still inadequate to the task before them, and to the extent that this condition is allowed to continue, it will limit the war effort of the country just as definitely as a shortage in cars and locomotives.

That the job is not completed is to be expected. So long as the present traffic load continues and increases, with its severe wear and tear on the fixed properties; so long as there are shifting demands from one territory to another and progress in methods of train operation, the job of the construction of maintenance forces will never be completed. The factor that is causing concern among those charged with maintaining the adequacy of the fixed properties is not that, once abreast of demands, they will not be able to keep abreast, but that, in spite of all of their efforts—efforts which have disregarded hours and physical comfort, and in many cases the health of those involved—they have not been able to overcome the serious handicaps placed upon many of their facilities by the depression years when expenditures for both construction and maintenance were necessarily reduced so drastically.

To see this situation as these officers see it, one must realize that the expenditures of the last few years for additions and betterments of the fixed properties have been relatively small as compared with those in the years 1925 to 1929, years when railway traffic was materially less than it has been for the last two years, and smaller by a still larger margin than the traffic in sight for the year ahead. So it is with the expenditures that have been made for roadway and structures maintenance. While these latter expenditures soared to a near record figure in 1942 and reached an all-time peak in 1943, the total expenditures for maintenance during the last five years as a whole have been materially smaller than the total expenditures during the five years 1925 to 1929, years of considerably lighter traffic. Furthermore, the expenditures of more recent years have incorporated several factors that reflect unfavorably on the results that have been accomplished per dollar expended.

Little Capital Improvement

In the case of capital improvements, the figures show that whereas the annual gross expenditures of the Class I railways of the country for additions and betterments of their fixed properties (not net additions) averaged $478,174,000 in the years 1925 to 1929, inclusive, annual expenditures for the same purposes in the six years 1932 to 1937, inclusive, only $129,299,000, and even in the six years of upturn and war effort, 1938 to 1943, inclusive, averaged only $159,115,000, or far less than in the 1925-1929 period.

As indicated by these figures, the railways, during the depression years, of necessity, held in abeyance hundreds of projects that they would have undertaken normally in the interest of improved service and greater efficiency and economy. It is equally clear that for reasons growing largely out of the war itself, including shortages in materials and restrictions placed on construction by the War Production Board, the railways have continued to defer hundreds of projects during the last few years, a situation that has affected seriously their ability to handle the record-breaking war traffic of the country, and which will continue to hamper the war effort of the railways, and of the country as a whole, until remedied.

Maintenance Expenditures High But Inadequate

And so it is with the maintenance of the fixed properties. While the larger expenditures for such maintenance during recent years have had an important influence in raising the standard of maintenance of the tracks and structures generally, the true picture of the condition of the different elements of the fixed properties can be seen only by a comparison of the expenditures of these years with those of the years preceding the depression. Such a comparison shows that whereas during the five years ending with 1929, these expenditures by the Class I railways of the United States (including switching and terminal companies) averaged $849,021,000 annually, they dropped to an average of only $397,189,000 during the six depression years of 1932 to 1937, inclusive, and, including the record expenditures of $1,106,871,000 in 1943, amounted to an average of only $648,398,000 in the six-year period 1938 to 1943, inclusive.

Significant as these figures are in themselves, they take on added significance when reviewed in the light of the traffic demands of the different periods, especially the 1925-1929 period and the more recent 1938-1943 period. In the former period, when annual expenditures for additions and betterments averaged $478,174,000, and annual expenditures for maintenance of way and structures averaged $849,021,000, annual gross ton-miles averaged approximately 1,237,403 million. By com-

parison, in the latter six-year period, when annual expenditures for additions and betterments averaged only $159,115,000, and when annual expenditures for maintenance of way and structures averaged only $648,398,000, annual average gross ton-miles of traffic averaged approximately 1,326,526 million. From these figures it is seen that whereas for the two periods, the need, as represented by gross ton-miles, has increased substantially in the more recent six-year period over the earlier five-year period, average annual expenditures for additions and betterments in the more recent period were nearly 67 per cent smaller, and average annual expenditures for maintenance of way and structures were more than 23 per cent smaller.

Not without significance too in this connection is the fact that, while every ton-mile of traffic took a greater toll in wear and tear during the latter period due to higher train speeds and more intensive operation generally, every dollar expended for improvements and maintenance produced a smaller amount of work because of higher wages, greater interferences by traffic, and a lower output per man-hour of a larger percentage of the labor employed. Also, during the latter period, and of no small importance, has been the effect of greatly unbalanced programs, especially in maintenance work; programs which, due to scarcity in specific materials and in labor, have seen large amounts of work of secondary importance supersede work of paramount importance, in an effort to strengthen facilities to the greatest extent with the materials and labor at hand. Outstanding in this regard have been the disproportionately large programs of bank widening, right-of-way sloping and ballasting work, when the crying unfilled need in many cases has been for new rail and stronger track fastenings, but which have been unavailable to every road in the quality desired because of the demand on the steel production of the country by the army, the navy, shipbuilding, lend lease and other war agencies.

Plan Record Programs in 1944

And the problems of engineering and maintenance officers are not over. While confronted with still greater demands on their facilities in the year ahead, they still face serious limitations in essential materials, serious limitations in their requirements for work equipment, and, as pointed out in another article in this issue, a critical shortage in manpower. It is true, as pointed out in still another article in this issue, that the material situation shows promise of easing in some categories, and that the roads can expect to receive a larger tonnage of needed rails in the months ahead, but offsetting this in some respects are the more serious shortages developing in such materials as crossties and lumber, the restrictions that are still in effect on many highly essential power tools and units of work equipment, and the acute shortage in manpower with which to operate machines and install the materials that become available.

In the light of these conditions, the months ahead will not be easy months for the construction and maintenance forces. These months will continue to call for maximum effort and the exercise of the greatest ingenuity in planning and carrying out the large programs of essential work which must be done if the fixed properties are to hold their own. That these forces realize the magnitude and importance of their responsibility, and propose to continue unabated their efforts to meet them, is seen in the fact that, barring restrictions in essential materials and labor that make them impossible, they plan further increases in expenditures in 1944 for both construction and maintenance, amounting to a total of more than $175,000,000 over those of 1943, although the expenditures in that year fell only a little short of being an all-time record.

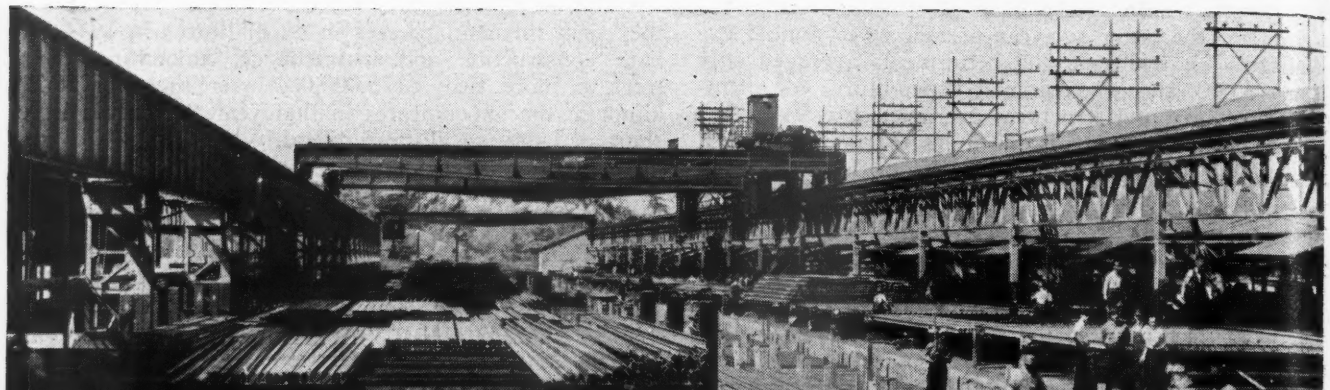
Predict Higher Expenditures

For additions and betterments to roadway and structures, tentative budgets indicate an increase in expenditures of about 20 per cent, rising to a total of approximately $325,000,000. For maintenance of way and structures, these budgets indicate an increase in expenditures of more than 10 per cent, rising to an all-time high of $1,218,000,000 in 1944. As during the last two years, attention in new construction, improvements and maintenance will be concentrated upon the immediate needs of present and prospective war traffic. Thus, the work for the year contemplates extensive yard improvements essential for expediting the assembly, classification and forwarding of cars out on the line; it contemplates extensive engine terminal improvements, with additions to and changes in tracks, enginehouses, cinder pits, water and coal-handling facilities, boiler washing equipment, and heating and water lines in enginehouses and other buildings incidental to terminal operation. Furthermore, plans, some of which are already well under way, contemplate shop improvements ranging from slight rearrangements or enlargements of existing buildings to new structures and completely new shop machinery; they contemplate further improvements in water stations, principally to obtain larger, better-quality or more dependable supplies, and also to insure faster and more dependable delivery to locomotives; and they contemplate more than usual attention to fueling stations. Still other improvements contemplated include further programs of passing track extension, construction or relocation, particularly in connection with new C. T. C. installations, the stepping up of train speeds and the use of larger power and longer trains.

In maintenance, the work ahead points unmistakably to larger programs of rail laying, tie renewals, ballasting, ballast cleaning, track surfacing, bank widening and drainage—in fact, in all items that will add to the strength and stability of those tracks that are being called upon to bear the brunt of the war load. To this end also, some roads are contemplating large programs of track stabilization over soft spots or areas, particularly through the driving of poles in the roadbed and the grouting of the subgrade with cement grout or asphalt. Other work will include bridge repairs and strengthening, with a larger number of complete span renewals as steel for these structures becomes more readily available.

Anticipating Coming Demands

All in all, 1944 will be an intensive year in both construction and maintenance—it must be an intensive year, if the tracks and structures are to keep pace, are not to mar the outstanding record of war-time rail transportation to date. Looking ahead, 1944 must also see substantial improvements in the fixed properties of the railways in anticipation of postwar demands, when the American public and industry, reconverting to peacetime pursuits and endeavoring to replenish war-lost supplies, necessities and conveniences, will look to the railways as the only means of transportation that will make this possible—indeed, will "rain coals of fire" upon their heads, with serious repercussions on the country, if they are not prepared to take up the postwar load and carry on.



Rail Production in 1944 May Reach and Top the 1927 Peak of 2,125,000 Tons

Increased Material Allocations Aid Railways' War Effort

Stepped-up buying and substantially greater deliveries of equipment reflect general recognition of the vital necessity of maintaining and even increasing railway capacity

AN increase of 38 per cent in railway purchases of materials and supplies during the first two months of this year, and a substantially larger increase in the number of units of new equipment delivered and placed in service during the first quarter of 1944, reflect the general recognition of the vital necessity of maintaining and even increasing the capacity of the railroads. Invasion freight looms large in the plans of our military leaders, and railway material and equipment requirements are being given greater consideration by the government war agencies now than at any time since the conflict began.

Procurement problems have been simplified to some extent in recent weeks by the gradual easing of critical materials, although in some instances industrial manpower problems inject elements of uncertainty regarding future deliveries. The steel picture is somewhat brighter. Rail production this year probably will reach and may pass the 2,000,000-ton mark. Currently, the deliveries of new freight cars are abreast of the program of 50,000 units in 1944. Steel plate production in March established a new high, with a 50,000-ton increase over February, and more than a quarter million tons of surplus steel are listed with W.P.B. offices. Cold rolled steel is more readily available. The zinc supply is large enough to meet necessary civilian requirements. With some few exceptions for strip brass, demands on the mills for brass wire are greater than ever and copper probably will be tight for the duration. About 98 per cent of the total production of brass rods is used by the screw machine products industry and these products are still critical.

Brighter prospects are evident for the production and delivery of certain lines of railway work equipment that formerly were stalled by the scarcity of electric motors and ball bearings. Production of direct current motors reached a new all-time peak in February, with an increase of 32 per cent in dollar value over the same month of 1943. The tight situation on ball bearings has eased appreciably during the last 60 days. January shipments of aluminum castings and fabricated parts climbed to new peaks.

War demands for crating and dunnage lumber, plus the large quantities of dimension and timbers needed to back the invasion and to supply our forces in the Pacific area, are reflected in the recent control measures adopted by the War Production Board to strike some semblance of balance between supply and demand. Lumber remains the most critical raw material. Cross ties and switch ties are still a matter of grave concern. Generally, stocks are sufficient throughout the country for this season's use, although the supply admittedly is causing concern to several roads which are adopting various expedients to eke out their 1944 supplies. Current production is another matter; with quantities running well behind 1943 in many territories, producers are beset with lack of experienced manpower, shortages of equipment, repair parts and adequate trucking facilities, while the lack of labor at treating plants imposes grave production problems.

Preliminary reports of railway purchases of materials and supplies during the first two months of this year confirm the prediction made by *Railway Age* earlier in the year (January 1 and 29, 1944) that conditions affecting railway procurement would be better in 1944 than in any year since the war began. The total purchases of materials and supplies (excluding fuel) by Class I roads, based on special reports to *Railway Age,* during the months of January and February exceeded similar purchases during the same period of 1943 by 38 per cent and were 6 per cent greater than for the months of November and December, 1943. These figures also reflect the increase in commodity prices. During 1943 the average increase in the cost of all railway materials and supplies amounted to approximately seven per cent.

Equipment placed in service during the first quarter also shows a large increase over the first quarter of 1943. During the first three months of 1944, the railways placed 7,838 new freight cars in service, an increase of 68 per cent over the 4,657 units installed during the same quarter of 1943. In the first quarter of this year, 261 new locomotives (148 Diesel, 112 steam and 1 electric) were placed in service to bring production almost abreast of the 1050 locomotives of all classes scheduled for 1944 delivery. The first quarter's deliveries show an increase of 64 per cent over the 159 (125 steam, 28 Diesel and 6 electric) delivered during the similar period in 1943. Equipment on order on April 1, 1944, comprised 36,727 new freight cars, an increase of 72 per cent over the 20,712 units on order on the same day in 1943, and 755 new locomotives, an increase of 29 per cent compared with the 586 on order on April 1, 1943.

The removal of restrictions on alloy steel and the assignment of AA-1 preference ratings (formerly AA-2x) for "B" components of locomotives late in 1943 now places the ratings on railway locomotives on the same level with those required for military programs. The "B" components include such items as motors, generators, engines, axles, superheater units and other products, which are essential to the complete locomotive. These improved ratings and other changes in procedure indicate the probability that the 1944 locomotive production program will be realized unless it is disrupted severely by manpower shortages.

1,820,000 Tons of Steel for Second Quarter

The gradual easing of the general steel situation in the last few months has resulted primarily from the reductions of some military programs. Conversely this lowered demand has been offset by the increased non-military requirements of railway equipment, rails and track materials, farm machinery, oil and gas facilities and food containers. By reason of the increased allotments for these purposes, second quarter allotments to claimant agencies approximate those for the first quarter. The W.P.B. allotted 1,812,000 net tons of carbon steel to the O.D.T. for the second quarter, which, except for one special item, about equalled the O.D.T.'s request. More than 95 per cent of this allocation already has been allocated by the O.D.T., and allocations now more nearly meet the requests submitted to the O.D.T. by the Association of American Railroads.

The progressive improvement in the general steel situation has prompted the gradual lifting of restrictions on the use of metals for civilian goods. The availability of more raw materials has allowed the W.P.B. to authorize the use of previously banned metals. Such actions are taken as the supply situation warrants and when better production and a saving in manpower result.

Steel ingot production in March reached 7,804,704 net tons, compared with 7,188,482 tons in February and 7,672,522 tons in March, 1943. Manpower shortage has been ascribed as the reason for failure to reach the all-time record of 7,819,061 tons made in October, 1943. The total ingot production for the first quarter of 1944 amounted to 22,588,388 tons, compared with 22,459,285 tons for the last quarter of 1943 and 21,920,237 tons for the first quarter of last year.

2,200,000 Tons of Rails for 1944

By reason of the unusually heavy war and civilian traffic which the railroads are being called upon to handle, the Office of Defense Transportation has asked the W.P.B. to allocate a total of 2,200,000 tons of new steel rails for 1944. This compares with 1,538,984 tons that the railroads received during the calendar year 1943, 1,260,000 tons allocated in 1942, the yearly average of 1,855,432 tons during the period from 1921-1929 and the annual average of 784,983 tons during 1930-1938, a period of comparatively light traffic when many carriers were unable to finance adequate rail replacement programs.

Present indications are that the railways will receive the full quantities of rail that they have requested, and in some instances possibly more, for the O.D.T. has emphasized the need for laying approximately 2,200,000 tons this year if roadbeds are to be kept in shape to handle war traffic. Steel rail mills are now operating at capacity, and the fly in the railways' ointment is the difficulty of securing enough men to lay the rail that will be made available during the coming months.

20 Per Cent Additional Track Materials

As the result of the release of substantial quantities of re-roller rail by the railways, and a carefully co-ordinated program initiated by the W.P.B. early in 1943, the production of re-rolled rail steel has been stepped up more than 80 per cent. Twenty-two rail steel mills now produce bars and small shapes for military cots, reinforcing bars, small tools, fence posts, farm implements and similar essentials, by rerolling rail steel where the use of other steel is prohibited.

The gradual easing of the steel situation is further reflected in the recent action of the W.P.B. authorizing the railways to place orders for additional track materials. The issuance of Direction 2 to P-142 in April allows the railways to place additional orders ranging up to 20 per cent of approved allocations for such equipment as frogs, switches and other items to balance additional new rail which it is anticipated will be allocated during the third and fourth quarters. The new directive emphasizes that such orders for track materials must not be confused with track accessories; nor can such orders for track materials be used to obtain any equipment other than to accompany the quantity of new rail which may be authorized for each railway.

A recent report from the W.P.B. indicates that the rolling capacity for sheet metal hardly will meet the requirements established for the third quarter. The sheet mills are crowded with rush tonnage and overload directives have been suspended until the end of the second quarter. On the other hand, while the pressure is strong for the delivery of plates, buying is less active because of the long interval now prevailing between the placing of orders and delivery.

Bar schedules currently are tightening because of the greater need for heavy shells and the needs of the railways and builders of farm equipment. The demand for steel

bars continues to increase, although occasional easing has occurred, such as that recently felt in the Northeast where machine builders have been liquidating stocks. The demand for bars for ship work has lessened somewhat, although naval requirements continue heavy.

Idle and excess stocks of steel listed with the W.P.B. early in April totalled more than a quarter million tons. In view of the many steel products still in short supply and on which delivery promises were extended considerably, buyers who are unable to fill their requirements from mills and warehouses are being urged by the agency to make use of these surplus stocks that may be purchased without being charged to allotment totals.

Railways Need $14,000,000 of Work Equipment

Prospects of obtaining more work equipment are definitely brighter. Many items are more readily obtainable than they were a few months ago, although in some instances reasonable deliveries are difficult to obtain. The slight easing of the situation in recent weeks is attributed to the more abundant supply of roller bearings, and improvements in the deliveries of aluminum castings and electric motors.

Faced with the most disconcerting manpower problem ever encountered, and with what promises to be the greatest track and structure program in history, maintenance officers, according to a recent survey by Railway Engineering and Maintenance, will requisition some 10,000 units of power tools and work equipment involving an expenditure of $14,000,000 during 1944. Spokesmen for the W.P.B. have emphasized that applications must be accompanied by "valid and detailed reasons why the equipment is needed." Given the services of competent shorthand artists, in an incredibly short time, the roadmasters and supervisors throughout the country can readily furnish enough valid reasons for agency approval of more than 99 per cent of all the items on the record-breaking program.

The mechanical devices in great demand cover practically the entire range of labor saving equipment and in some instances deliveries are limited by the productive capacity of the manufacturers. Requests for mechanical track devices have increased 200 per cent over last year.

The production of construction equipment, such as bulldozers, angledozers, scrapers and crawler wagons, is expected to be sufficient, during the rest of 1944, to meet the most essential requirements, according to a recent announcement by the W.P.B. Shipments of crawler wheel assemblies are delayed somewhat, but delivery schedules of winches and crawler wagons are being maintained. Automotive type components are critical and the output of the scarcest type determines the flow of all components.

Lumber Production Behind Schedule

Lumber still retains its place as the country's No. 1 critical raw material. Preliminary estimates of the Lumber and Lumber Products division of the W. P. B. show that the stated 1944 requirements of the Claimant Agencies exceed even the most optimistic estimates of production. The railways' 1944 needs approximate 1,200,000,000 board feet.

Stocks at the nation's sawmills and concentration yards totaled 4,578,000,000 board feet on January 1, 1944, compared with 10,012,000,000 board feet in January, 1941, and 6,571,000,000 board feet in January, 1943. Mill stocks for the country as a whole declined about 5 per cent from the end of the third quarter of 1943 to the end of the year.

The estimated lumber production for the first two months of 1944 amounted to 4,958,639,000 board feet, of which 3,793,119,000 board feet were softwoods and 1,165,520,000 board feet were hardwoods. Although the total production in January exceeded that of the same month in 1943 by 9.8 per cent and represented a normal seasonal decline of 4.4 per cent from December, 1943, production in January, 1943, was unusually low because of bad weather and a low supply of logs. Favorable weather in the Northwest and the Lake States produced a good showing this year when the month's production showed a decrease of only 0.8 per cent from that of the previous month. However, the W.P.B. announced recently that shortages of manpower and equipment indicate that it is improbable that the 1944 goal of 34,000,000,000 board feet will be attained.

Last year's lumber production amounted to 34,600,000,000 feet and it is estimated that fully half that quantity will be used in 1944 for the sole purpose of packaging and crating war supplies; or approximately four times as much as peacetime shipping requirements. As a measure of the large additional quantities of lumber required for dunnage, approximately 10 carloads of lumber, ranging in size up to 12-in. by 12-in. timbers, are required to store the cargo within the hold of the average ship. Every serviceman shipped overseas requires 300 feet of lumber to crate his initial supplies and 50 feet every month from then on to keep him in supplies.

Some conception of the demolition of military objectives and the subsequent lumber requirements may be realized from the fact that 50,000,000 feet, or approximately 2,000 pre-war carloads, of lumber were needed to enable the Allied forces to use the harbor facilities of the port of Naples. An entire ship load of lumber had to be used to provide temporary protection for our troops after the capture of Tarawa, for not a single structure on the island remained intact.

The Development of Lumber Control

These are examples of the important role that lumber plays in modern warfare. Other specialties requiring lumber include pontoon bridges, the decks of aircraft carriers, PT boats, wooden aircraft and innumerable others. Used as a yardstick, these uses point to the tremendous additional requirements that will be needed during the impending invasion of Europe and in defeating Japan. Unlike the war of 1914-1918, the Western Hemisphere is today carrying practically the entire burden of lumber supply, and all indices point to a tremendous demand that probably will continue until the end of the war.

In a country where lumber always has been one of its most plentiful products, and where previous shortages have been limited to one or two months at the most, it appears that in the early stages of this war few if any foresaw the prolonged sustained demand in excess of supply. During the building program of 1941-1942, no restrictive orders were deemed necessary, and it was not until a year and a half ago that the pinch on Douglas fir prompted the issuance of order L-218.

As demands increased, order L-290 was issued to control the use of Western pine. Still requirements mounted, and disruption of supply and demand spread to Eastern softwoods, Southern pine and hardwoods. Of necessity, orders M-361 and M-364 were issued last December to divert these species to the most critical uses, while subsequently additional orders have been

issued to control other species. The complete list of controlled hardwood species now includes oak, ash, hickory, pecan, birch, hard maple, rock elm and beech.

The ever-increasing demand for crating lumber encompasses all species, with the result that the country has a mass lumber shortage with one and two-inch sizes predominating. In an effort to strike a balance between supply and demand, the W.P.B., on March 22, issued lumber order L-335 to establish controls in providing lumber for war purposes and the most essential civilian needs. As a result, WPB expects to control the distribution of about 75 per cent of the yellow pine output and 70 per cent of the restricted hardwoods, compared with the control of 50 per cent of each species under previous methods.

Under the new order, all major lumber consumers were required to file, on or before April 25, applications for their requirements for the second and third quarters. As the first step in the over-all control of lumber, this order is designed to provide W.P.B. with accurate information on the over-all demand for specific purposes. Thus, it is anticipated that one of the greatest obstacles to the proper balancing of supply and demand will be removed. On the basis of the information received, the W.P.B. expects to be able to control the consumption of all lumber, rather than certain species ,in relation to the available supply and the relative essentiality of the purposes for which it is to be used.

Tie Production Lags While O. P. A. Fiddles

Although the total value of the tie inventories of Class I roads, as of February 1, 1944 (the latest information available at this writing), indicates that, as a whole, the railways have an adequate supply of crossties on hand for this season's tie renewal programs, the cross and switch tie situation ranks next to lumber as the most critical material problem. General production is lagging well behind that of 1943, with individual reports showing reductions ranging from 25 to 40 per cent.

While some roads have enough ties to meet their 1944 demands, many others are already feeling the pinch of inadequate supplies. For instance, one of the large systems that serves the Southwest and the West, expects to renew approximately the same number of crossties as in 1943, but the pinch is manifest because last year's program of necessity was restricted to approximately two thirds of the normal replacements. One of the Midwestern roads foresees a much tighter tie situation than last year, when at that time the shift of North woods labor from tie production to pulpwood made it necessary to purchase off-line ties from Southern territory for the first time in 15 years. Another Midwestern road admits that it has been forced to lower its tie standards in order to promote production, and one of the large railroad systems serving Eastern and Central territories has resorted to the Boulton process for seasoning or conditioning ties as they come from the woods, in conjunction with preservative treatment, as a means of providing enough ties for this year's use.

So the story goes, as one railway after another usually is forced to adopt one expedient or another for providing this year's ties, and with the ever-present spectre of a critical tie shortage in 1945 as the inevitable result of steadily decreasing production so far this year.

Producers within the industry are harassed with a multitude of problems ranging from the shortage of manpower in the woods, on the yards and at the treating plants, sharply increased labor costs, the need for adjustment of tie prices to encourage production and provide a fair return, to the need for properly balanced ceilings for switch ties. While the personnel of the industry advisory committee comprises men well versed in tie production, and while the several sessions of the committee represent the expenditure of considerable time and effort in attempts to provide the O.P.A. with essential data and recommendations, all these efforts apparently have been ineffective. The advisory committee has been relegated to the realm of "the forgotten man," while matters drift with no apparent efforts forthcoming to place the industry on a firm basis.

Better Quality Materials Now Available

The last few weeks have been characterized by the action of the W.P.B. in lifting and easing many restrictive control features affecting the quality of many materials, tools, and items of equipment of various kinds that are used extensively by the railways. The general improvement in the raw materials situation has been followed closely by appropriate action on the part of the W.P.B. in conjunction with its policy of the conservation of industrial manpower, the conservation of materials now in greater demand and of allowing the use of scarce materials for the production of better products.

Restrictions have been relaxed to allow the use of alloy and heat-resisting steels, when desired, in the production of many tools, including hand shovels, scoops, and telegraph spoons; forged axes, hatchets, adzes and light hammers; forged hand tools; hand forks, hooks and rakes. Preference ratings of A-10 or better have been removed from cast iron soil pipe, and manufacturers have been allowed to resume the production of extra heavy soil pipe to take advantage of large inventories of fittings that cannot be used with other weights.

To improve the quality and performance of industrial power trucks, restrictions recently were lifted on the use of synthetic rubber for anti-motor-vibration plates, lead for counterweights and steel plates for battery boxes. Likewise, restrictions have been lifted to improve the quality of dewatering pumps by allowing the use of copper and copper-base alloys for wheel bushings; and of iron and aluminum in place of iron alone for the body construction of self-priming centrifugal pumps. Conveying machinery and power transmission equipment will be improved in quality and performance efficiency by a recent action of the W.P.B. which allows the use of alloy steels for chain, sprockets and other items, as well as iron and steel for bunkers and conveyor structures.

The lifting of all restrictions on the gage of steel for enclosure cases and doors is designed to improve the quality and performance of electrical safety switches, panel boards and service entrance equipment. Metal reflectors soon will be available again for fluorescent lighting fixtures. More durable wash fountains and interceptors for oil and grease in plumbing fixtures soon will replace less satisfactory vitreous clay products since restrictions on ferrous metals for these purposes recently were modified.

Reflecting an easier supply of linseed oil, restrictions on the amounts that may be used in various types of paints and protective coatings have been relaxed recently by an amendment to order M-332. Exterior emulsion paints now may contain 2 lb. of linseed oil per gallon, instead of 1.5 lb. as heretofore. The increases also extend to carbon black and graphite paints, where the linseed oil content may be stepped up from 3.75 to 5 lb.; gloss mill whites, from 2.5 lb. to 3.5 lb.; and interior gloss paints, enamels, machinery and floor enamels and interior aluminum paints, from 2.5 to 3 lb. per gallon.

Shipper Co-Operation Continues

Transportation record is made possible only by aid given by railway customers individually and through advisory boards and other organizations

NO RECITAL of the magnificent job that the railways are doing is complete unless it includes a description of what the railways' customers are doing to promote efficient transportation. Just as the railways are meeting the ever-increasing demands placed upon them, so the shippers, individually and through their associations, are meeting the challenge and furthering the cause of wartime transportation by the more efficient handling of cars while in their possession and by many other means.

The importance of this co-operation to the railways cannot be over-emphasized. The increases that the railways are continuing to show in such vital operating factors as net ton-miles per loaded car-mile, net ton-miles per freight car-day and average miles per car per day, would not have been possible without the aid of the shippers and the constant effort by both the railways and their customers to understand and cope with their mutual problems on a fair and understanding basis. In these efforts, the regional advisory boards and the National Industrial Traffic League have played leading roles.

Advisory Board Activities

While the shippers' advisory boards have attempted to carry forward all of their various functions and activities throughout these wartime days, such as the making of quarterly forecasts of car requirements, formulating opinions as to business conditions in general, supporting legislation which will be of benefit to the railroads and shippers alike, the main activities have centered around car efficiency.

The boards have been untiring in their efforts to determine new ways of securing greater efficiency and more transportation from existing equipment. For example, the boards have not only co-operated wholeheartedly with the Office of Defense Transportation in seeing that what is known as the "Maximum Loading Order" (General Order 18) is complied with, but have actually encouraged their members to load cars even heavier than required under the order. Moreover, they have overlooked no opportunity to urge shippers to load cars more quickly so that they might be "pulled" from the loading platforms and returned to line-haul service at the earliest possible moment. They have not been content merely to load the cars within the 48-hour free time period, but an earnest effort has been made to load them within the first 24-hour period. As much can likewise be said of the unloading of shipments. The various car efficiency committees have urged shippers to unload and release cars at the earliest possible moment—not merely to make sure that they are released within the free time period.

During the last year, the advisory boards have recognized to a greater extent than ever before the necessity for shippers to unload commodities completely from cars, leaving them in such condition that they can be switched immediately to other loading platforms for new loads without the necessity of the railroad taking them to cleaning tracks for the removal of dunnage and debris. They have recognized that hundreds of thousands of car-days could be saved by encouraging consignees to unload cars completely, and have spent a great deal of effort on this matter. Efforts have been made to persuade individual railroads that reports of failures to co-operate should be made to these car efficiency committees of industries in order that these committees may bring the importance of co-operation to the attention of their fellow shippers with some force.

Each year the National Association of Shippers Advisory Boards sponsors what is known as the "April Perfect Shipping Month" campaign. The purpose of this campaign is to direct attention to the waste of money, the waste of time, the waste of materials, and the waste of transportation involved when goods are lost or damaged in transit. The boards have recognized the Perfect Shipping Month campaign during wartime as a distinct part of transportation conservation, as lost or damaged goods which must be replaced by other goods consume additional transportation. Thus in 1943, and again in 1944, more vigorous efforts than before were made to minimize loss and damage. This campaign has been complicated by the necessary use of second-hand containers, the scarcity of packing materials, and the fact that temporary and inexperienced help is employed many times because of present manpower shortages.

Before the war, because of the increasing prevalence of the five-day week, many industries discontinued picking up or receiving less-than-carload freight on Saturdays. With the tremendous increase in the volume of merchandise now being handled by the railroads in many sections of the country, the local freighthouses have been congested on Monday mornings because of the arrivals over the week-end. In some instances, this congestion has extended so far as to require the railroads to hold merchandise in the cars because there was not room enough to unload it in the freighthouses. Recognizing that this condition was contributing to the inefficient use of railroad equipment, a campaign has been under way for over a year by the shippers' boards to persuade consignees to pick up and receive freight six days per week and even seven days per week, if necessary to relieve congestion. The result of this campaign has been highly satisfactory and has contributed a great deal to the ability of the carriers to handle less-than-carload freight without congestion and delay.

Many communications have been sent to the various boards, and in turn, to their memberships, urging shippers to deal carefully with the question of routing, in order to avoid unnecessary circuity, not only as regards distance, but also in the selection of routes which will not increase the time in transit of shipments or contribute to congestion. The boards have likewise been active in calling the attention of the War Production Board to the great necessity for increased materials, supplies and equipment for the railroads.

For more than a year, the president of the National Association of Regional Advisory Boards has been directing attention to the increasing importance of the railroad man-power problem and the effect of the continuous drain of trained personnel away from the railroads. Most

of the boards have recently interested themselves in this problem. Many of them have passed resolutions urging, if necessary, the exemption from the Selective Service Act of trained railroad personnel and have taken other action which will be beneficial.

What the N. I. T. League Has Done

Even before the war, the National Industrial Traffic League had set up a special committee to handle transportation problems brought about by the national emergency. With the advent of war, and recognizing fully the tremendous increase in traffic that it would throw upon our transportation facilities, the League on April 14, 1942, gave its special committee on emergency transportation matters "authority to represent and speak for the League in any and all matters that may arise in the Interstate Commerce Commission, in the Office of Defense Transportation, or elsewhere, having to do with the national transportation emergency" and resolved that it "dedicate itself to all-out co-operative effort with other agencies, governmental, transportation and shipper, to secure maximum utilization of available transportation facilities to the end that our war effort may be advanced with the greatest possible expedition and efficiency, and essential civilian needs may be met in so far as possible."

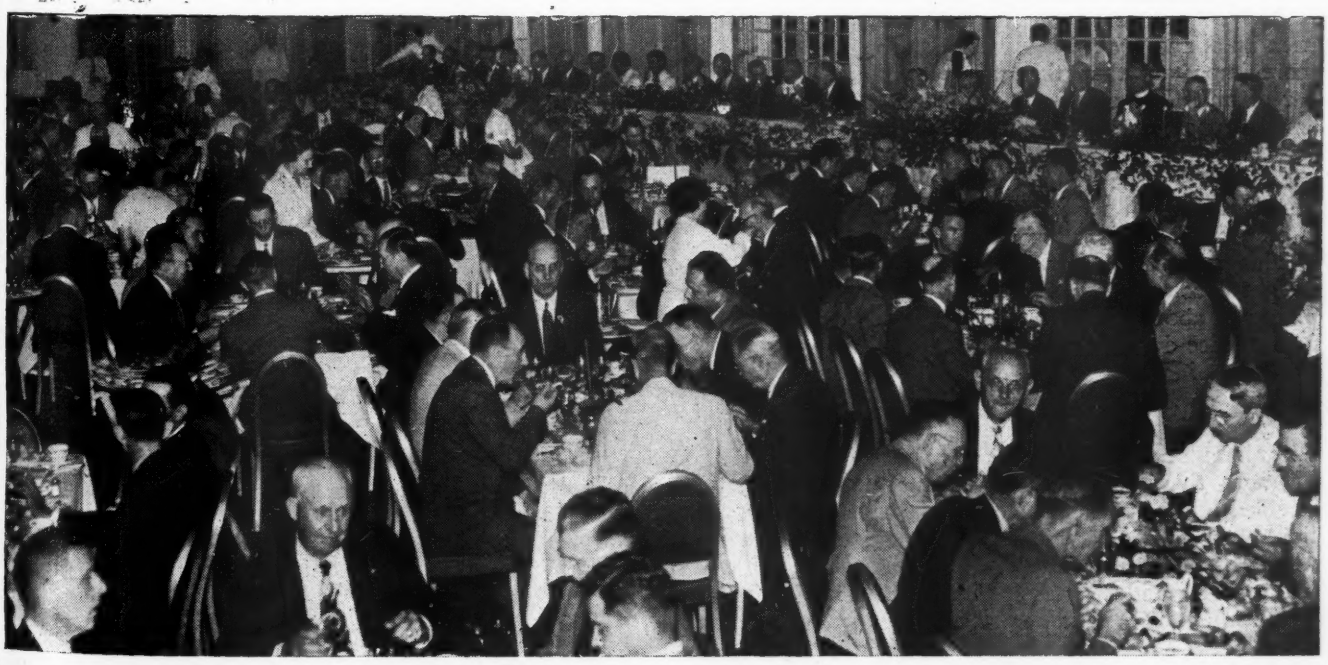
The Interstate Commerce Commission, the Office of Defense Transportation, officers of the A. A. R. and others interested were notified promptly of this action by the League, and were informed that its special committee was at their call to render such assistance, particularly in a consultative and advisory capacity, as was desired. This special committee was called into conference by Director Eastman of O. D. T., on April 24, 1942. On April 25 it met with Colonel Johnson, in charge of the Bureau of Service of the I. C. C. and shortly thereafter with officers of the A. A. R. Since that time, the special committee has been in almost constant consultation with the agencies and organizations directing our tranportation machine on the multifarious questions arising with respect to its most efficient utilization. Its advice has been sought and well received upon numerous occasions in connection with the issuance of orders and directives and other steps.

In its actions, this special committee has been guided at all times by the needs of the war effort and has shunted into the background peacetime standards and "advantages" and "business-as-usual" criteria. It has supported steps and changes which would save car-days, such as the tightening in certain respects of the demurrage and storage rules and the application of penalty charges in certain situations; it has urged receivers to order maximum carloads and has strenuously pushed measures requiring heavier loading of cars. It has advocated more careful routing of shipments in the interest of using the most expeditious, less congested and best available routes. It has encouraged and insisted upon prompt loading and unloading, even though that has called for extra expense in shifting labor from plant operations to do the job and has led to overtime payments. Through the League and otherwise, the committee has emphasized again and again to its membership and all other shippers the need for maximum co-operation in the conservation of railroad equipment. These constant appeals have done much to assist in bringing about better and more efficient use of transportation equipment.

This special committee, through the League, has also urged that shippers or receivers of freight give more attention to the removal of dunnage, blocking, debris and refuse from cars to permit their immediate re-use, without requiring them to be sent to a cleaning track. It also worked with the I. C. C. Bureau of Service in Reducing the use of railroad equipment in intra-plant service, thus saving additional car days.

The shippers' associations have urged upon their members the dangers of a complacent attitude. They are pointing out as forcefully as possible that the transportation emergency still exists and that the problems assailing the railways—such as lack of manpower and a diminishing supply of equipment—are increasing in severity instead of becoming easier. It is necessary more than ever before that shippers continue and expand the co-operation that they have extended so universally and so constructively if a transportation breakdown is to be avoided.

Mutual Problems Are Discussed Between Railways and Shippers and a Thorough Understanding Is Arrived at in the Meetings of the Shippers' Boards



Freight Motive Power Establishes a Peak Operating Record

Consistently, for a period of 20 months, almost 87 per cent of the freight locomotive inventory has been in constant use—New power has shown superiority

ONE fact related to motive power use for the movement of freight on American railroads stands out above everything else at this time. For 20 months, month by month, the job of handling the freight trains of the Class I roads has required the use of between 86 and 87 per cent of all of the locomotives assigned to freight service; this percentage, during this 20-month period, has never been less than 86.1 nor greater than 87.0.

In this same period the monthly locomotive mileage has varied from 62.9 million to 70.4 million, while freight-train-miles have varied from 54.2 million to 60.3 million. Coincidentally both low figures represent the performance of February, 1943, and both high figures that of October, 1943. In February, 1943, 86.7 per cent of the freight power was used and in October, 1943, 86.2 per cent was used.

This 20-month consistent locomotive utilization percentage can now be reasonably accepted as an indication that we have reached a practical limit in freight motive power capacity beyond which we can not go without substantial additions to the inventory or radical improvements in engine terminal and back shop methods. That this is not made as a positive statement is the result of having experienced, two or three times in the last four years, similar indications that such capacity had been reached only to discover that for short peak periods, at least, it was possible to go beyond the limit.

It is now apparent that ultimate locomotive capacity does not necessarily depend upon the number of units in service but rather on the general characteristics of such units and the manner in which they are used. Still more important than the utilization of any given number of units is the potential utilization of that relatively small proportion of the locomotive inventory which can be classed as modern power. This proportion now consists of a group of high-capacity steam locomotives, mostly less than 15 years old, and approximately 100 Diesel-electric freight locomotives.

This rather small group of about 100 Diesel-electric freight locomotives represents a total installed horsepower of about 475,000. Most of the locomotives went into service during the year 1943, so that not more than about 30 of them actually operated for the full 12 months of that year. As may be seen in Table II, the Diesel-electric freight locomotive-mileage in 1941 was only 1.7 million; in 1942, it was 5.8 million and the addition of more than 70 units during the year 1943 almost doubled the locomotive-mileage—the total being 9.5 million. On one road the ratio of locomotive-miles to gross ton-miles in Diesel-operated service is 1 to 3,300, which will give some idea of the influence of this type of power. The comparative ratio for steam, as may be calculated from Table I is 1 to 2,071.

Fortunately for the railroads, wartime traffic is a job which must be done regardless of what the cost may be, for under no other condition could there possibly be any justification for the rehabilitation and return to service of several thousand 20- to 35-year old locomotives that were previously headed in the direction of the scrap heap. Yet strangely enough, from a cost standpoint, the performance of the new power, both steam and Diesel in conjunction with a high use factor of some of the older power, has not resulted in anything like the soaring locomotive operating costs of World War I. It can be added, of course, that prior to the outbreak of this war the character of railroad operation provided no reasonable excuse for a repetition of the government control which proved so costly last time. But, in fairness to those who had the job to do in 1917-1918 it can also be said that the present efficient tools, in the form of motive power and related facilities, were not then available.

The Difference Between Old and New

Out of the multitude of comparative examples of the value of the newer locomotives one may be selected as typical that will tell the story just as completely as volumes of statistics. On one railroad having 600 locomotives operating over a profile with grades as heavy as 1.9 per cent and 6-deg. curves two groups of locomotives were studied with a view to making a rough appraisal of their worth. In the first group were 55 Mountain type 4-8-2 units purchased in 1921 and 1924. These locomotives have 200-lb. boiler pressure, 63,000 lb. tractive force and 63-in. drivers. The specialties include booster, brick arch, superheaters, syphons, and mechanical lubrication. All bearings on the engine and tender are plain. In a 12-month period the locomotives of this group that were in service made a total of 2,700,000 miles, or an average of 4,100 miles per month per locomotive. Those passing through the shop for Class 3 repairs had accumulated mileages from 125,000 to 166,000.

The second group on the same road, operating the same territory, consisted of thirty 4-8-4 type locomotives built between 1931 and 1938. These units have 275-lb. boiler pressure, 66,700 lb. tractive force and 70- and 77-in. drivers. The specialties include superheater, brick arch, feedwater heater, syphons, booster, full mechanical lubrication and roller bearings. In the same 12-month period the locomotives of this group that were in service made 2,400,000 miles, an average of 6,900 miles per locomotive per month. Those passing through the shop for Class 3 repairs had accumulated from 183,000 to 235,000 miles since the last shopping for general repairs.

Table I—Selected Statistics of Motive Power and Freight Train Performance

	Total freight locos.	Unserviceable	Stored Serviceable	Active locos.	Per cent active to total	Loco. miles (000)	Gross ton-miles (000,000)	Freight train-miles (000)	Freight car-miles (000,000)
1929	1	2	3	4	5	6	7	8	9
October	28,912	4,417	2,680	21,755	75.3	64,756	110,444	56,748	2,785
1942									
February	21,841	3,238	916	17,687	80.9	55,030	100,489	48,030	2,341
October	22,027	2,344	340	19,343	87.8	70,461	141,880	60,717	3,155
1943									
January	21,974	2,509	352	19,113	86.9	67,152	126,930	57,966	2,790
February	22,048	2,629	297	19,130	86.7	62,962	121,919	54,246	2,660
March	22,075	2,676	282	19,117	86.6	70,103	137,148	60,344	3,028
April	22,030	2,585	283	19,162	87.0	67,524	134,882	58,295	3,001
May	22,067	2,593	364	19,110	86.5	69,491	141,453	59,801	3,131
June	22,096	2,595	376	19,125	86.5	66,071	132,549	57,110	2,959
July	22,083	2,471	406	19,206	86.9	69,311	143,568	59,758	3,151
August	22,031	2,677	395	18,959	86.0	69,296	144,817	59,711	3,183
September	22,107	2,666	355	19,086	86.3	67,680	140,771	58,373	3,110
October	22,037	2,703	335	18,999	86.2	70,084	145,076	60,355	3,185
November	22,205	2,740	308	19,157	86.2	66,448	133,356	57,338	2,937
December	22,259	2,601	315	19,343	86.8	67,433	133,254	58,325	2,918
1944									
January	22,351	2,666	310	19,375	86.6	68,927	137,118	59,489	3,020
February	22,341	2,808	307	19,226	86.1	66,547	132,795	57,367	2,943

Data in Columns 1 to 4 from I. C. C. Statement M-240 OS-F; columns 6 to 9 from I. C. C. Statement No. M-211 OS-A; Column 5 calculated.

The high utilization of all of these locomotives was greatly influenced by an average turning time of slightly over 3 hr. at home terminals and less than 2 hr. at turnaround terminals.

The tonnage ratings of the latter group were proportionately higher than that of the former and, with higher sustained speeds and shorter turning time the total revenue tonnage handled in any 24 hr. period is so much greater as to warrant the development of special shop methods with a view to cutting to a bare minimum the time out of service for major repairs, when necessary.

Many of the shop methods, some brought into the picture by the Diesel, including that of the principle of parts replacement rather than removal, repair and replacement have resulted in an availability percentage now apparently limited primarily by the time required for inspection, firecleaning and running boiler repairs.

A still more modern group of 4-8-4 type locomotives on this same road, in service less than one year, is already showing evidence of developing a far better performance record than even the aforementioned 9 to 13-year old locomotives.

In the field of the Diesel-electric freight locomotive there are approximately 100 units in service on about 20 railroads. Full-year operating records for 40 of these locomotives on four roads show monthly average mileages between 10,500 and 12,000 miles. In a period of 11 months in the year 1943, 31 of these units made 3,990,000 locomotive-miles and handled 13.1 billion gross ton-miles with individual monthly locomotive mileages as high as 11,700.

Any discussion of freight transportation would be incomplete that failed to pay proper tribute to the hundreds of Diesel-electric switching locomotives that are working around the clock to keep yards free of congestion and make up loads of freight in trains ready for road power to handle. It is difficult to evaluate the real influence of this factor. Of 13,726 locomotives assigned to freight yard switching service in February, 1944, there were 1,700 Diesel-electrics. It is worth while, again, to call attention to the fact that the inventory of steam and electric switchers is only 7,100 units. This means that there are over 5,000 road type locomotives doing switching service. The large backlog of orders for Diesel switchers may be an indication not only of the need for new switching power but of the appreciation of the operating department of the value of the Diesel switcher.

What Is Modern Power—How Much of It?

For purposes of discussion modern steam freight power can be considered to be that symbolized by the four-wheel trailer truck and built since 1925. The five-year period, 1926 to 1930, witnessed an era in which locomotives of the Mikado and Santa Fe type became obsolete and in which the four-wheel trailer types came into existence. In the 13-year period ending with 1930, 4,769 locomotives of the 2-8-2 type were ordered, whereas in the 13-year period ending with 1943 only 105 Mikados were ordered.

A borderline case is that of the 4-8-2 type, 1,616 of which were ordered in the first 13-year period and only 186 of which were ordered in the latter 13-year period.

If, therefore, a modern locomotive, whether by type or age, can be considered to be one less than 20 years old, there are only approximately 4,200 modern freight locomotives out of a total inventory of 21,800. Certainly our experience of the last few years and of the last 20 months in particular has definitely formed a pattern of post-war steam motive power. If the railroads in the post-war period, regardless of whatever volume of traffic they may have, are to operate economically it will be done on the basis of using modern facilities. On this basis there can be little argument with the premise that at least 16,000 or 17,000 of the steam locomotives will definitely be obsolete and uneconomical. It is believed that progressive railroad executives can see the value of replacing rapidly a large proportion of our obsolete motive power. Under such circumstances orders for 2,000 locomotives a year—Diesel, steam and electric—might not be too high an estimate.

Table II—Comparison of Freight Locomotive Mileage by Type of Power

	1938		1939		1940		1941		1942		1943	
	Loco.-miles (000)	Per cent of total	Loco.-miles (000)	Per cent of total	Loco.-miles (000)	Per cent of total	Loco.-miles (000)	Per cent of total	Loco.-miles (000)	Per cent of total	Loco.-miles (000)	Per cent of total
Steam	461,220	97.9	495,465	97.5	530,305	97.5	629,622	97.4	749,736	97.3	789.904	97.1
Electric	9,669	2.0	12,169	2.4	12,895	2.4	14,645	2.3	14,582	1.9	14,123	1.7
Diesel and other	135	0.1	216	0.1	527	0.1	1,711	0.3	5,778	0.8	9,529	1.2
Total	471,024	100.0	507,850	100.0	543,727	100.00	645,978	100.0	770,096	100.0	813,556	100.0

Freight-Car Status Is Still Tense

Deferred retirements of old cars accumulate—New car supply lags—Those available technically obsolete—Heavy replacements probable after the war

"WE have been deferring equipment retirements seriously during the past two years when retirements have been far below normal. This means that cars have been kept in service which are not economical to run but which had to be kept going because replacements were not available. We cannot keep them running forever." This statement by L. M. Betts, manager, Railroad Relations Section, Car Service Division, A. A. R., was used in the 1943 Freight Progress issue of *Railway Age* as the beginning of an article discussing the freight car situation as it existed then.

Nothing occurred during 1943 to alter the truth of Mr. Betts' statement except that most of the cars of which he then spoke have seen one year more of service and accumulated many thousands of miles each of additional wear. Only 7,674 cars of all types were listed in 1943 as destroyed or dismantled, a figure which represents only 0.44 per cent of the total car inventory of the country. The figure is so low as to suggest that only those cars were permanently retired which had been so badly damaged in wrecks, sideswipes or collisions that they could not be repaired and returned to service. It is, therefore, evident that the car picture in 1944, insofar as the condition of freight equipment is concerned, is not in any way brighter and, in some respects, is worse than that of 1943.

New Cars on Order

The addition of 28,700 new freight cars to the inventory in 1943 cannot be regarded as having eased the situation very greatly when the increase in traffic which occurred during 1943 and is continuing in 1944 is considered. Further evidence that conditions are still more critical than in 1943 can be had by an examination of the car surplus figures in the first quarter of this year. They ranged from fewer than 17,000 to about 28,000 as compared with a range from over 35,000 to over 81,000 in the first quarter of 1943. The lowest week in 1943 showed a surplus of 13,500 cars and this occurred during the October peak.

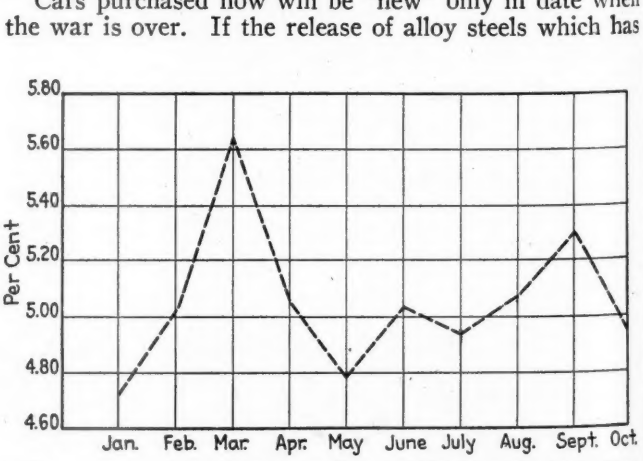
As of April 1, the railroads had a total of 36,727 new freight cars on order, the total including 15,815 hopper cars, 4,230 gondolas, 800 flat cars, 11,386 plain box cars, 3,150 automobile box cars, 1,146 refrigerator cars and 200 stock cars. On the same date in 1943 there were 20,712 cars on order. Cars delivered to April 1 totaled 7,838 as compared with 4,657 placed in service in the same months during 1943. However, retirements during the first three months of 1944 were approximately 45 per cent greater than in the similar 1943 period.

Most of the cars which are now on order are scheduled for delivery during the latter half of the year although deliveries will continue during the first half on orders placed late in 1943. Assuming that deliveries will be proportionately higher this year than last, based on the increase during the first three months, there will be approximately 40,000 new freight cars placed in service during 1944. It is believed that the builders' plants now have a capacity somewhat greater than this which would be available for freight-car construction if orders are placed promptly and the material supply picture suffers no adverse change. It is a certainty that every car which can be delivered will be needed if the present traffic pattern continues.

The issuance of certificates of necessity by the War Production Board which permit the amortization of defense equipment purchase cost over a five-year period has not resulted in any appreciable increase in the placement of orders for freight cars. It appears that such orders as have been placed have been dictated more by the absolute necessity for obtaining additional equipment than by any special financial considerations. Although the W. P. B. has approved the abandonment of the emergency composite car designs and is making steel available for "Victory" cars, many roads still seem to be limiting their commitments for cars. This attitude appears to be due largely to the hope that they may be able at a later date to obtain lightweight, high-speed equipment which will be of greater value to them in the postwar period than the "Victory" model cars which they could purchase now.

The railroads are actually confronted with a double problem, the first, their responsibility to provide adequate wartime freight transportation; the other, their responsibility in being certain that they will be able to supply transportation of the type which will be demanded in the postwar period. So far they have managed to meet their wartime responsibilities by supplementing the equipment which they already had with such new cars as were allowed them under the material allocations made. In looking now toward their place in the peacetime economy they cannot be blamed if they do not purchase heavily of car types which will become obsolete at the moment when new alloy steels, aluminum and other structural materials for lightweight, high-speed cars are available.

Cars purchased now will be "new" only in date when the war is over. If the release of alloy steels which has



Percentage of Tank Cars Set Out of Trains for Repairs in 1943

been made for locomotive construction could be extended to the car field, and the manufacture of castings and specialties for high-speed trucks be permitted, it is certain that orders for freight car equipment would exceed the present available plant capacity.

Revenue freight-car loadings during the first three months of the year increased 4.9 per cent over the loadings for the similar period in 1943 and the reason for the dangerously low car surplus figures given is readily apparent when this increase is considered. If this rate of increase continues approximately unchanged during the balance of the year we may anticipate car shortages that can affect the movement of practically every commodity carried by rail. Even making allowance for the expected increase in new car installations the equipment which will be available can hardly be expected to handle an approximate five per cent increase in the revenue ton-miles of freight carried which was about 65 billion in both August and October of 1943.

Factors Affecting Car Demand

How far the invasion of Europe and increased military and naval activity in the Pacific, China and India will affect the railroads' war load is certainly not clear at the present time. It is probable that the tremendous stockpiling of war materials in Great Britain has been done with an eye to having all anticipated immediate requirements for the heavier weapons of war, ammunition and the like on hand in that country. Large quantities of replacement materials, ammunition, planes, tanks, motor vehicles, landing barges, ordnance, fuel and food will continue to move in the same or even greater volume for some time at least. Any complete and early success on the European continent for the allied armies would certainly lessen the load on railroads handling war materials to Eastern, Southern and Gulf ports. Only a partial success followed by a long period of campaigning would probably result in a marked increase in freight movements to these same ports.

Assuming successes in Europe of such a nature that the burden of freight traffic eastward is reduced we must still consider how much relief this will actually afford. Announced plans of the allied joint commands are to press more vigorously the war against Japan as soon as the European situation seems well in hand. At the time when this occurs it appears evident that the freight car situation on the railroads will become more acute than ever before. When heavy war traffic begins to move westward from the Eastern and Central states where most of the producing facilities are located, several factors become of the utmost importance in considering car availability: increased length of haul and track and terminal capacities. Without the latter two factors being considered at all, increased mileage will probably double the turnaround time required for the cars directly involved. In addition to this, cars will be empty in a region where there will be very little chance of utilizing most of them for loads on their return journeys. Track capacity west of the Mississippi as compared with the territory east of that river is such that further delays in the handling of cars can be anticipated.

And, finally, there is some probability of a piling up of equipment in the Pacific coast ports which are not as numerous as those in the East. It is true that some of the load in supplying our forces in the Pacific might be carried by ships loaded at Southern and Gulf ports and moving through the Panama Canal, but the increased length of ship carry would probably dictate making the maximum use of Western ports with a resultant effect upon the freight car situation of the country as a whole.

Recently announced changes in food rationing may lead, temporarily at least, to an increased demand for house and refrigerator cars to move the now non-rationed canned goods and meats to market. How long this will continue is anybody's guess but while the demand exists there will be a very tight situation with respect to box cars which have been short continuously since the first of the year.

Open-top equipment is in for a heavy demand with the ore traffic on the Great Lakes expected to set a new record this year both because of the early opening of traffic and the addition of 25 new vessels to the Lake fleets. Coal and grain movements on the Lakes are also expected to be higher this year and this will affect the demand for both open-top equipment and house cars suitable for grain traffic. Coal loadings were up considerably in the first quarter of the year and, if mine production can keep pace with demand, the prospect is that such loadings will be between eight and ten per cent greater this year than last.

In connection with the grain traffic, although the situation has now eased and elevators are reported not to be blocked, grain will be offered in large enough quantities to asborb the probable number of cars available for grain service. The movement of 200 cars daily into Canada, arranged for early this year at the request of the War Foods Administration through the O. D. T., for hauling out 40,000,000 bushels of grain purchased by the W. F. A., resulted in considerable Senatorial criticism of the agencies involved. The movement of cars was temporarily reduced to 100 per day until the domestic situation was relieved and our own elevators opened. Much more important than the uproar created in Washington is the indication which this comparatively minor diversion of equipment gave that the high-class-commodity-loading box car is not in plentiful supply.

Again assuming a successful outcome to the European venture this summer or fall, there will be an increasing demand for box cars for the movement of grain, flour and other food commodities for shipment to those countries from which the Germans are ousted. Such a demand, coupled with the earlier-mentioned change in traffic movements to the West coast, seems to add up to a very real potential shortage in the house car field.

Car Additions and Retirements in the War Years

	1942		1943		1944	
	New	Dismantled	New	Dismantled	New	Dismantled
First quarter ...	27,258	1,627	4,657	1,072	7,784	1,913
Second quarter ..	15,865	2,340	4,758	1,536	....	....
Third quarter ...	6,969	3,120	11,013	2,039	....	....
Fourth quarter ..	6,905	2,057	8,276	3,027	....	....
Total	56,997	9,144	28,704	7,674	....	....

Oil movements to the East coast by rail have continued at a rate of above 700,000 barrels daily despite the fact that, with the decline in the submarine menace in the Gulf of Mexico and off the coast of the Southern states, heavy movements by tanker have been resumed. Although the present rail figures are considerable less than the peak of more than a million barrels daily which was reached in 1943, the cars which have been released have been taken up immediately in other territories. So long as military operations in Europe continue actively there is little likelihood that rail movements of oil to Eastern refineries will be reduced much further. And, with increased activity in the Pacific, tank cars will be in ever greater demand while suffering the same

First Quarter Loadings

	1942	1943	Change from 1942	1944	Change from 1942	Change from 1943
Ore	192,775	189,277	− 3,498	179,729	− 13,046	− 9,548
Miscellaneous	4,617,386	4,603,442	− 13,944	4,709,981	+ 92,595	+106,539
Coal	2,036,081	2,201,793	+165,712	2,289,051	+252,970	+ 87,258
Coke	183,961	195,635	+ 11,674	196,862	+ 12,901	+ 1,227
Grain and grain products	507,819	626,489	+118,670	658,049	+150,230	+ 31,560
Forest products	576,920	495,771	− 81,149	543,331	− 33,589	+ 47,560
Live stock	149,473	168,807	+ 19,334	196,650	+ 47,177	+ 27,843
Mdse. l. c. l.	1,891,787	1,179,767	−712,020	1,317,471	−574,316	+137,704
Total	10,156,202	9,660,981	−495,221	10,091,124	− 65,078	+430,143
Total full carloads	8,264,415	8,481,214	+216,799	8,773,653	+509,238	+292,439

disadvantages mentioned before as to length of haul and track and terminal congestion.

Factors Affecting Car Supply

It is not enough to consider the increase in installations of new equipment against the number of cars permanently retired when attempting to forecast future car supply. As has been indicated, the net increase in the car inventories of the railroads will be more than absorbed by increased traffic demands. It hardly then seems likely that the average net ton-miles per freight car day, which was 1,040 in 1943, can be increased appreciably, nor that the car-miles per day, which averaged 48.5 in 1943, can be pushed up to much over 51, the likelihood being that the 1944 average will be about 50. The percentage of loaded freight car-miles during January and February of this year has run slightly higher than in the same months of any of the three preceding years but, as the year goes on, we may look for a less favorable comparison if any very heavy change in traffic flow occurs which will divert large numbers of cars to the West coast.

Bad order cars are now being held to the very low figure of 2.5 per cent of car ownership and this fact is of very great importance in attempting to estimate the probable car supply for the balance of this year. How long the figure can be held at this low point in the face of the intensive utilization of equipment is a matter of concern now on many roads. The time must come, and there are signs that it is not far off, when this percentage will tend to rise. A rise of as little as a half of one per cent, approximately 8,500 cars, would be greater than the total number of new cars installed during the first quarter of the year. The car departments have done a remarkable job at holding the bad-order ratio at about 2.5 per cent for more than a year. Materials for car repair work will be available in greater volume this year and the draft ruling announced on May 11 promises to be helpful in preventing any further depletion of experienced men. These factors have restored hope that the rise in bad orders will not be at a dangerous rate.

Although we are accustomed to looking to the bad-order ratio as a measure of car conditions, the fact should not be overlooked that, on any given day, approximately four per cent of all cars receive repair attention with the average delay per car being about a full day. These are the cars which are sent to rip tracks by car inspectors for wheel changes, cleaning of air brakes, body repairs and other attention. This approximation was arrived at after a survey of one of the most valuable car studies made by the Mechanical Division of the A. A. R. Starting in January of 1943 and continuing through October records were kept of all tank cars which were set out of trains for repairs. For this period an average of 5.05 per cent of all tank cars handled required repairs.

Making allowance for the fact that some of this type of equipment was in very bad condition when it was first placed in service, it seemed necessary to estimate that the percentage of defects on all types of equipment would be somewhat lower. However, the bulk of the defects for which tank cars were set out are of a type which would be the cause of setting out any other car and the estimate of four per cent seems justified. For example, of a total of 643,922 set outs of tank cars reported in the ten-month period, 7.12 per cent were for inoperative air brakes, 8.01 per cent for piping and other air-brake defects, 12.95 per cent for required attention to brake rigging, brake beams and hangers, 6.79 per cent for hot or cut journals, 17.55 per cent for slid-flat wheels or other wheel defects, 13.6 per cent for couplers, draft gears, stops, yokes, keys and yoke rivets, and 12.93 per cent for repairs to safety appliances.

So, while the bad order car ratio is important in showing the number of cars which have been temporarily retired to await repairs it can be misleading if interpreted as meaning that all other cars are available for or actively in service. In any twenty-four hour period about 6.5 per cent of all freight cars are not contributing to traffic movement. Rip track attention is vitally important in the consideration of car supply and, as in the case of true "Bad orders," the percentage of cars on rip tracks will show some tendency to rise under continued intensive utilization of cars and the increasingly critical manpower situation.

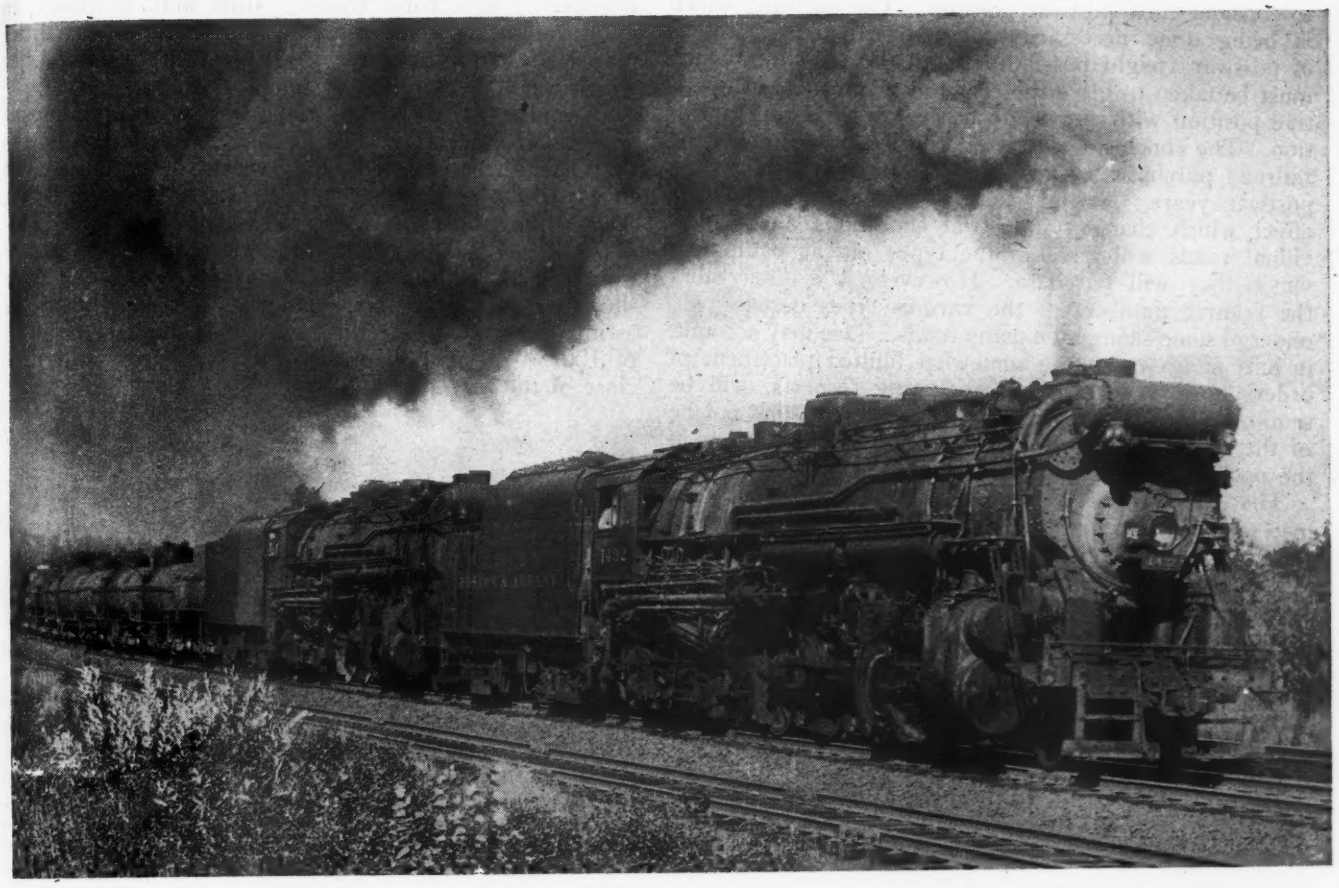
Postwar Car Requirements

Another factor to be considered which takes many cars out of service for varying periods of time relates to loading. Car supervisors throughout the country are finding that, despite efforts made to educate shippers and appeals to them for co-operation, adjustment of ladings and transfers of loads require thousands of man-hours daily with cars tied up while the work is done. Related to this as a factor affecting car supply is the misrouting of shipments and failures on the part of originating roads to check clearances to destination. Each such instance results in lost car time and a reduction in available supply; multiplied by the number occurring, these are appreciable factors in the overall picture.

Car supply is also being affected adversely by the creeping up again of the number of cars of l. c. l. freight being loaded. During the first quarter of 1943 there were more than 700,000 fewer such cars loaded than in the first quarter of 1942. However, during the first quarter of the current year the number of such carloads was 138,000 greater than in 1943. The strain of such loadings goes against the supply of box cars which was, during this first quarter, inadequate for grain loadings. If the trend continues, the late summer and fall will be marked by a very critical box car shortage.

Along with other industries the railroads are beginning

(*Continued on next left-hand page*)



Performance

is the PAY-OFF!

No railroad can wring more miles out of a locomotive than its builder has packed into it. Lima-built locomotives give you the superior performance, the extra stamina and greater mileage that flow directly from Lima's insistence upon the highest standards of design, workmanship, and materials.

The economic superiority of the steam locomotive has never been better demonstrated than by the remarkable record it has set in its speeding of the heaviest wartime traffic. In the current performance of Lima-built Modern Steam Locomotives will be found countless examples of what can actually be expected from steam power at its best.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

to consider their postwar position. The planning which is being done necessarily involves exhaustive studies of postwar freight possibilities and the measures which must be taken to place the roads in a favorable competitive position with respect to other forms of transportation. The conclusions arrived at will be reflected in the railroad purchases of new freight car equipment in the postwar years. So far there is no indication of the effect which changed industrial conditions along individual roads will have in the types of car equipment which they will purchase. However, it is likely that the relative numbers of the various types of cars will undergo some changes on many roads. This may account, in part at least, for the somewhat limited placement of orders now for cars which, in many respects, will be semi-obsolete after the war and which, also, may not be of the types most needed to meet the local situation in the postwar period.

There have been a number of well-thought-out estimates of postwar new car requirements with respect to numbers and design features. E. D. Campbell, vice-president in charge of engineering, American Car and Foundry Company, has estimated that there will be a demand for 100,000 new freight cars annually in the first five postwar years merely to replace obsolete and worn-out equipment. He foresees freight cars which will be several thousands of pounds lighter than present cars of the same capacity and which will be equipped with trucks capable of speeds up to 80 miles an hour without serious damage to ladings. Steel alloys, according to Mr. Campbell, will be used for the majority of strength members with a limited number of cars, particularly those subject to corrosion or oxidation from ladings, built of aluminum alloys.

W. I. Cantley, mechanical engineer, Mechanical Division, in a paper presented before the Railroad Division of the A. S. M. E. last December, gave an estimate of one million as the number of cars likely to be permanently retired in the immediate postwar years with 125,000 being scrapped and replaced with new equipment each year for eight years. He suggested a division of cars into two classes, the first to be cars intended for use at moderate train speeds to increase the ton-mile revenue and designed to carry bulk commodities; the second, cars to be used at high speed in long trains to carry express freight. Both classes of cars would be of lightweight construction with the second group especially engineered in braking, trucks and draft gears for high-speed service.

Truck Studies in the Making

With the trend toward lightweight, high-speed equipment new construction materials will be important but the two things which appear to be of primary importance are the brake system and the trucks. Some form or adaptation of the empty-load brake must inevitably be required if the full tonnage capacity of these new cars is utilized. Truck studies are now being made by numerous manufacturers and several high-speed trucks have been announced. Further refinements will undoubtedly be made as the railroads go into a new era of fast freight movement after the war.

Numerous special body types and cars equipped with a variety of loading and load retaining devices will be built, according to railroad executives, who have been studying the handling of postwar freight. Increased coordination between railroads and trucking subsidiaries or contractors may further increase the use of container-type cars with sections so designed that they can be transferred to a truck trailer. Bulk milk is moved in great volume now in such cars and traffic potentialities may lead to an intensive study of other commodities which might be handled in similar fashion.

In connection with the estimates of postwar domestic and Canadian freight-car requirements, it is interesting to note that there have been five years since the close of the last war when new car orders went over 100,000. They were: 1922, 181,000; 1923, 103,000; 1924, 146,000; 1929, 121,000, and 1941, 123,000. With the exception of 1929 and 1941 these years were all soon after the close of the last war, and they add weight to the estimates that new freight cars will be built at the rate of 100,000 or more annually for some years after the close of the present war.

New Book . . .

Life of a University Professor, by Emory R. Johnson. 282-pages. 9¼ in. by 6¼ in. Bound in cloth. Privately printed and distributed.

This book, an autobiography of the emeritus professor of transportation and commerce of the Wharton School of Finance and Commerce of the University of Pennsylvania, has been written mainly, according to the author's preface, to tell about his activities as a student and worker in the field of transportation, and as a collaborator with others in establishing the pattern of university education therein.

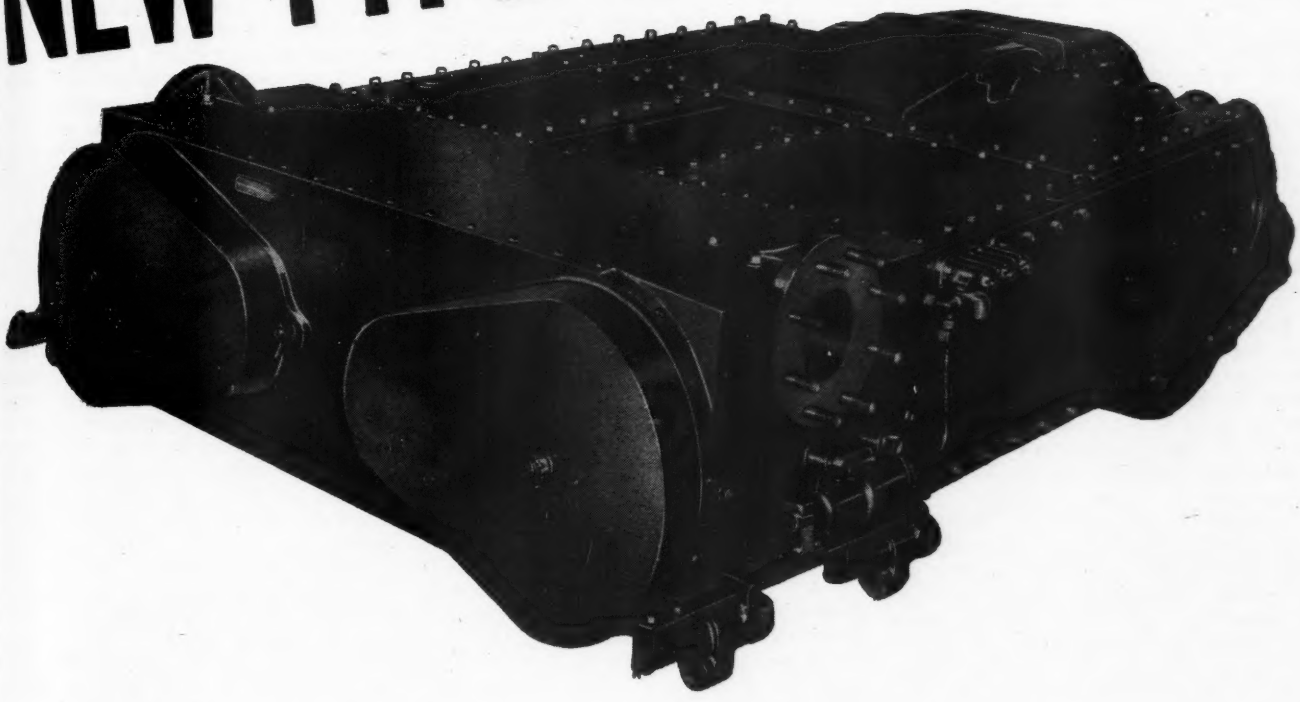
The extensive list of books, government reports and substantial miscellaneous publications prepared by the author, either individually or in collaboration with other specialists in the same field, several of whom had studied in the school to the development of which he devoted so generous a portion of his long career, may be taken as one measure of the energy and time and talent contributed by him to the resolution of transportation problems, both within college walls and as an investigator, adviser or witness for government agencies and business interests.

"While an autobiography can be neither a diagnosis nor a discussion of past and present transportation problems," Dr. Johnson remarks, "an account of the activities of one whose work has brought him into personal relation with a number of the problems may serve to make them seem to be less abstract and more concrete." To some extent he has devoted this account to incidents in the development of the Wharton School through the half century of his association with it, as teacher and dean, and to the creation and evolution of the textbooks and other publications through which his influence was impressed upon a much wider field, but the greater portion of the autobiography deals with his extra-curricular activities as a transportation "expert."

Beginning with investigations made for the federal commissioner of labor that he started in 1895, the author discusses in some detail the problems, purposes and accomplishments of many other undertakings of this nature. Successive chapters in the book deal with his membership on the Isthmian Canal Commission prior to the time the decision to build the Panama Canal was reached; with his services as an adviser and arbitrator in labor disputes; as an investigator for the National Waterways Commission; as a special commissioner to make recommendations regarding Panama Canal tolls; as a member of the Pennsylvania Public Service Commission; as supervisor of a Shipping Board study of ocean freight rates and costs during World War I; as a participant in the sessions of the National Transportation Conference which preceded the enactment of the Transportation Act of 1920; as president of the National Institute of Social Sciences; as an investigator of freight rate questions for the Tariff Commission; as a "cautious" advocate of so-called improvements of the St. Lawrence river for navigation and power production; as a member of the committee on railroads of the United States Chamber of Commerce; as a "consultant" to the Baltimore Association of Commerce in connection with the acquisition of Western Maryland stock by the Baltimore & Ohio; as a witness in various cases having to do with rates and railroad consolidation proceedings; and as a "messenger" on transportation matters abroad.

(*News department begins on next left-hand page*)

Check these advantages of the NEW TYPE "E" BOOSTER*



RECOGNIZING the trend in locomotive design, and noting the many new factors in current steam locomotive operation, the new Type "E" Booster has been developed expressly to meet today's conditions. Check the following advantages.

Short cut-off for economy in steam consumption. A special starting feature for full initial starting effort. Cast steel cylinders with large integral inlet and exhaust passages. Dynamic balancing for smooth operation at higher speeds. A roller bearing crankshaft for long life with minimum maintenance. A new air control permitting engagement at higher speed. A new design of ball joint with self-adjusting packing and large passage areas. The selection of the proper gear ratio for each given boiler pressure, wheel diameter, and adhesive weight.

*Trade Mark Reg. U. S. Pat. Off.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

Railroads-in-War News

Railroads Ready to Move War-Wounded

Arrangements are made to get casualties to hospitals in the interior

When Army and Navy officers presented to the railroads, at a meeting at Chicago on May 4-5, the problem of transporting in the United States the hospital and litter cases expected to result from the coming invasion of Europe and increased activities in the Pacific area, they found the railroads prepared to perform their part in this phase of the war. The railroads are so organized that all that was required was to throw existing machinery into gear, i.e., the Interterritorial Military committee and supporting territorial passenger associations which work with the Army and Navy in organizing and routing military movements, have the necessary preparations in hand.

Prepared for Maximum—Plans for handling these hospital and litter cases are based upon extreme conditions that could mean the movement of several thousand persons per month by the end of the year. Even if the total approaches the maximum, which many railway officers doubt, these persons can be transported from the ports to hospitals in the interior in regular and special train operation without inconvenience to the public. However, in the event that ships arrive in numbers in a short period of time, due to delay in crossing or to a difficult battle, such as to overtax the coast hospitals, it might be necessary to make heavy rail movements from the ports. Should such an emergency arise, hospital and litter cases will be given priority over all other passenger movements, with the result that passenger cars and even whole trains may be taken out of scheduled service to rush the sick and injured to hospitals.

Under the Army's plan, patients evacuated from overseas will move by troop transports, hospital ships or by air. Those who are evacuated by troop transports from the European and North African theatres to the United States will be unloaded at three or four Atlantic ports. Those who come back by hospital ships from either the European or North African theatres will arrive at one or two other designated Atlantic ports.

Patients who return by air from these two theatres will arrive at points in three or four different states. A few patients may be delivered at Gulf ports. Patients coming by transports from the Southwest and Central Pacific will arrive at two or three Pacific Coast ports. These multiple ports create a "fluid situation" under which ships can be rerouted enroute.

Patients to Port Hospitals First—When patients arrive, they will generally be carried by ambulance or bus, but sometimes by rail, to debarkation hospitals located near the ports and at these hospitals they will be classified and sent by rail to general hospitals inland. Some will be sent from these general hospitals to medical installations and other institutions where final treatment or disposition is accomplished. Under this arrangement, it is estimated that patients arriving at Pacific Coast ports will travel between 1,450 and 2,300 miles, while those arriving at Atlantic Coast ports will travel about 1,100 miles. By moving patients in the direction of their homes, travel by visitors and furloughed patients during convalescence will be reduced.

Plans for Car Movements—Generally, movement from the port hospitals will be to about 25 destinations, in groups of from 15 to 100. Patients will be routed in solid trains to diversion points where the trains can be split up. In these movements, as well as in the movement of single groups, waiting time will be reduced to a minimum and adequate feeding facilities will be provided. When train movements are prearranged, the messing facilities will be provided by the medical kitchen cars but when medical kitchen cars are not available, dining cars will be furnished by the railroads.

In addition to arranging for the movement of overseas patients, the railroads will provide for the return movement of several thousand nurses and attendants. Likewise, they will provide for the movement of the military population still within the United States and of patients from one hospital to another for specialized attention.

Although the needs of the Navy will be of lesser magnitude, they will require considerable transportation. Navy cases go into port hospitals, where special treatment and need of transfer to station centers are determined. Mental, fever and amputation cases in the Navy and Marine Corps are handled on a specialized basis which require transfer by rail to the Naval hospitals.

Railroads to be Forewarned—Under the plans formulated by the railroads, passenger representatives have been assigned to every hospital in the United States—to cooperate with the transportation officer at the hospital and arrange movements of patients to other hospitals and for the return of attendants. To facilitate rail movement from Army port hospitals, ships will radio information regarding the number and types of patients on board so that the railroads and the Pullman Company can make room in the receiving hospitals or be prepared to handle patients from the ship dock. Already the railroads have built up a reserve of rooms, sleeping cars and coaches on routes over which hospital cases are moving with regularity and will increase the reserve as demands become greater.

Get Ready for Big 1944 Wheat Harvest

Diversion of cars into Canada slowed May 15; elevator capacity is adequate

Termination of the diversion of United States freight cars to Canada for the movement into this country of the federal Commodity Credit Corporation grain held there was effective May 15, except for a limited movement through Sweet Grass, Mont., to the Pacific coast. This Canadian diversion recently has been at the average rate of 200 cars per day for the wheat movement, and about 125 cars a day for coarse grains, for feed purposes, although it was curtailed to 100 cars per day for a 30-day period following a special Senate subcommittee investigation of the grain car situation last winter, as reported in *Railway Age* of February 19, page 395.

Still 50 Daily Cars to Canada—The movement of not more than 50 cars per day through Sweet Grass will continue indefinitely, according to Association of American Railroad sources, to meet the critical shortage of livestock feed in the Pacific coast region, where shipping is not available to bring in supplies normally moved by water. The movement from Canada was otherwise discontinued so that the supply of cars available to handle the new wheat crop of this country's major producing areas could be built up as far as wartime demands permit.

At the time the War Food Administration agreed to the limit on the movement to 100 cars a day for a 30-day period, it was understood that the agreement was conditioned on maintaining the 200 cars per day movement thereafter until May 15. The diversion of cars to Canada for this purpose at a time when country elevators in the northwestern states allegedly were "blocked" was the basis of the subcommittee investigation out of which grew that modification of the W. F. A. plans, it being argued by supporters of the northwestern shippers that the diversion was interfering with the ability of the railroads to move their grain to the terminal elevators. As noted here at the time, Senator Reed, Republican of Kansas, was particularly critical of the part played in the arrangements by the W. F. A. and the C. C. C., while he also found fault with the program developed by the A. A. R. to meet these agencies' car requirements.

"Tightness" Expected—The expectation that the western railroads will be called on to supply a "much larger" number of cars during this year's harvest season than has been needed for several years to handle the grain movement has led to the request

News Department continued on next left-hand page

SECURITY CIRCULATORS

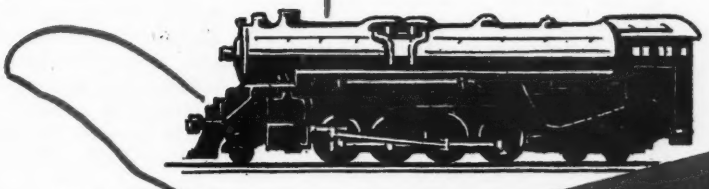
1 Positive flow of water over **CENTER** of crown sheet

2 Reduced honeycombing

3 Reduced flue plugging

4 Reduced cinder cutting

5 Better arch brick support



for greatly increased
LOCOMOTIVE AVAILABILITY

4366 SECURITY CIRCULATORS IN USE, ON ORDER

AMERICAN ARCH COMPANY
INCORPORATED
NEW YORK CHICAGO
SECURITY CIRCULATOR DIVISION

of the A. A. R. Car Service Division that roads in the East and South return at least 18,000 suitable cars of western ownership before July 1, noted in *Railway Age* of May 6, page 862. The response to this request so far has been ahead of quota requirements, it is understood. Nevertheless, a "tight" car situation, with occasional local car shortages, is expected to develop at times during the crop movement season, both because of the larger wheat harvest in prospect this year, and because the farmers, handicapped by a manpower shortage, are expected to throw the crop on the market more rapidly than usual.

While the elevator space available for this year's crop is reported to be ample, in contrast to the situation in 1943, it is expected that elevators both in the producing areas and particularly at the terminal markets may experience some difficulty in keeping cars moving evenly because of their manpower shortage.

Large Winter Wheat Crop—The winter wheat harvest is expected to begin in volume about the end of this month, and the production of the southwestern region—including Texas, Oklahoma, Colorado, Kansas, Missouri and Nebraska—will, according to present estimates, exceed last year's 314 million bushels by about 37 million bushels. The winter wheat crop of the central states—including Illinois, Indiana, Michigan, Ohio and Pennsylvania—will exceed last year's 82 million bushels by about 51 million bushels, according to current estimates. In addition, roads in that area will be called upon to move, during the season of Great Lakes navigation, some 285 million bushels brought by water to the lower lake ports, according to estimates, as compared to 190 million bushels in the same movement in 1943, so that the total wheat movement in this area alone is expected to exceed last year's by 146 million bushels.

Name Tie Advisory Committee

The first meeting of the newly constituted Eastern Railroad Tie Industry Advisory Committee, scheduled for May 18 at Cincinnati, Ohio, was planned to perfect its organization and to discuss production and pricing problems with Office of Price Administration representatives, according to an O. P. A. press release disclosing the personnel of the committee, the purposes of which are similar to those of other industry committees functioning under the auspices of that agency.

The officers of the committee had not been chosen when the announcement was made. Members are: E. J. McGehee, vice-president of Koppers Co., wood preserving division, Pittsburgh, Pa.; Thomas D. Harden, vice-president of L. A. Clarke & Son, Washington, D. C.; E. J. Stocking, vice-president of Hobbs Western Co., St. Louis, Mo.; J. S. Penny, president of E. J. Moss Tie Co., St. Louis; J. H. Tabb, president of J. H. Tabb & Co., Houston, Miss.; Carroll Milam, Sr., manager of Williamson Tie Co., Jacksonville, Fla.; Paul D. Webster, secretary-treasurer of Webster Lumber Co., St. Paul, Minn.; J. R. Kieg, manager of Kirby Lumber Co., tie department, Beaumont, Tex.; D. B. Frampton, president of D. B. Frampton & Co., Pittsburgh; Joseph L. Kalbach, manager of J. E. Kalbach & Son, Winchester, Va.; D. W. Bauer, vice-president of Potosi Tie & Lumber Co., St. Louis; Charles S. Patterson, of Park Falls, Wis.; and T. J. Turley, Jr., vice-president of Bond Brothers, Louisville, Ky.

Lake Coal Permit Requirements Suspended to July 15

Restrictions on the movement of coal by vessel on the Great Lakes, scheduled to go into effect May 15, have been postponed by the Office of Defense Transportation to become effective July 15, it was announced May 13. This will permit the movement of coal on the lakes without O. D. T. permit until that date. It was explained that institution of the permit system would not be required for the present to meet the need for vessel space to handle the iron ore movement.

O. D. T. Resignation

Harold J. Drescher has resigned as associate director of the Division of Review and Special Studies of the Office of Defense Transportation, effective May 20. He is returning to his law office in New York, but "will continue to serve O. D. T. as a consultant to the Division of Review and Special Studies," the announcement said.

C. N. R. Assigns Women to Buffet-Parlor Car Service

An experiment is now being tried out in the buffet-parlor car service on the Canadian National main line between Halifax and Sydney. One woman has taken over as buffet-cook, a second as pantry girl and a third as waitress. The feminine crew is headed by a male steward.

The first women so employed in Canada, the innovation was decided upon because of the ever-dwindling supply of men. The C. N. R. now is considering women crews in buffet-parlor-car service on other main line runs—namely, between Moncton and Saint John.

The original crew between Halifax and Sydney is attracting considerable attention, the railway reports. The buffet cook and the pantry girl wear "Hoover" aprons and the waitress has a white uniform, edged in maroon, with apron and bandeau. The cook wears a chef's cap.

I. C. C. Service Orders

The provisions of Interstate Commerce Commission Service Order No. 201, restricting the use of certain refrigerator cars for the transportation of ice, have been modified by First Revised Service Order No. 201, effective May 15, which supersedes the original order and permits issued thereunder. The service order provides that type RS, RA, RAM or RSM refrigerator cars shall not be used for the movement of ice except when owner's permission for such use has been obtained.

Service Order No. 170, directing the rerouting of empty and loaded cars to relieve congestion in the vicinity of Baltimore, Md., has been set aside by Order No. 170-A, effective May 11. Service Order No. 199, directing the rerouting of traffic because of flood damage at Vincennes, Ind., was set aside by Order No. 199-A, likewise effective May 11.

First Revised Service Order No. 197, effective May 9 in lieu of order No. 197, has continued in force the provisions of that order concerning the movement of low grade potatoes, but made them applicable to "freight cars," rather than "box cars," in order to prevent the substitution of other types of cars for this purpose. Service Order No. 204, directing roads in areas subjected to floods in the Ohio, Missouri and Mississippi valley territories to reroute traffic when delayed by resulting carrier disability, has been set aside by order No. 204-A, effective May 13.

Pullman Traffic Still Rising

Continuing its steady upward movement, the volume of military and civilian travel handled by the Pullman Company set a new all-time record of seven billion passenger miles during the first quarter of the year, according to preliminary estimates of the company. This is an increase of 17 per cent over the first quarter total of six billion in 1943 and indicates that Pullman travel volume in 1944 may be 3½ times as great as the total of the last pre-war year.

"The enormous wartime job of the nation's railroads is reflected in Pullman volume figures for the last few years," George A. Kelly, vice-president, said. "In 1940, Pullman delivered 8.2 billion passenger-miles. This figure increased to 10 billion in 1941, soared to 19 billion in 1942, and in 1943 was roundly 26 billion. If the present rate of increase continues, the 1944 total may exceed 28 billion.

"In any event, in the months immediately ahead, we may look for the heaviest passenger burden that Pullman and the railroads have ever carried, and we are hopeful that civilian travelers will avoid adding needlessly to the wartime load."

Organized military travel, he said, currently accounts for nearly half of the total Pullman traffic volume.

O. D. T. Prepares for Increased Asphalt Movement

The Office of Defense Transportation has announced that Director Johnson has written to the governors of the various states, to Mayor LaGuardia of New York, president of the United States Conference of Mayors, to the American Association of State Highway officials and to the Association of American Road Builders, urging them to eliminate in every possible way delays to tank cars and trucks carrying asphalt, so that this equipment can be used most efficiently.

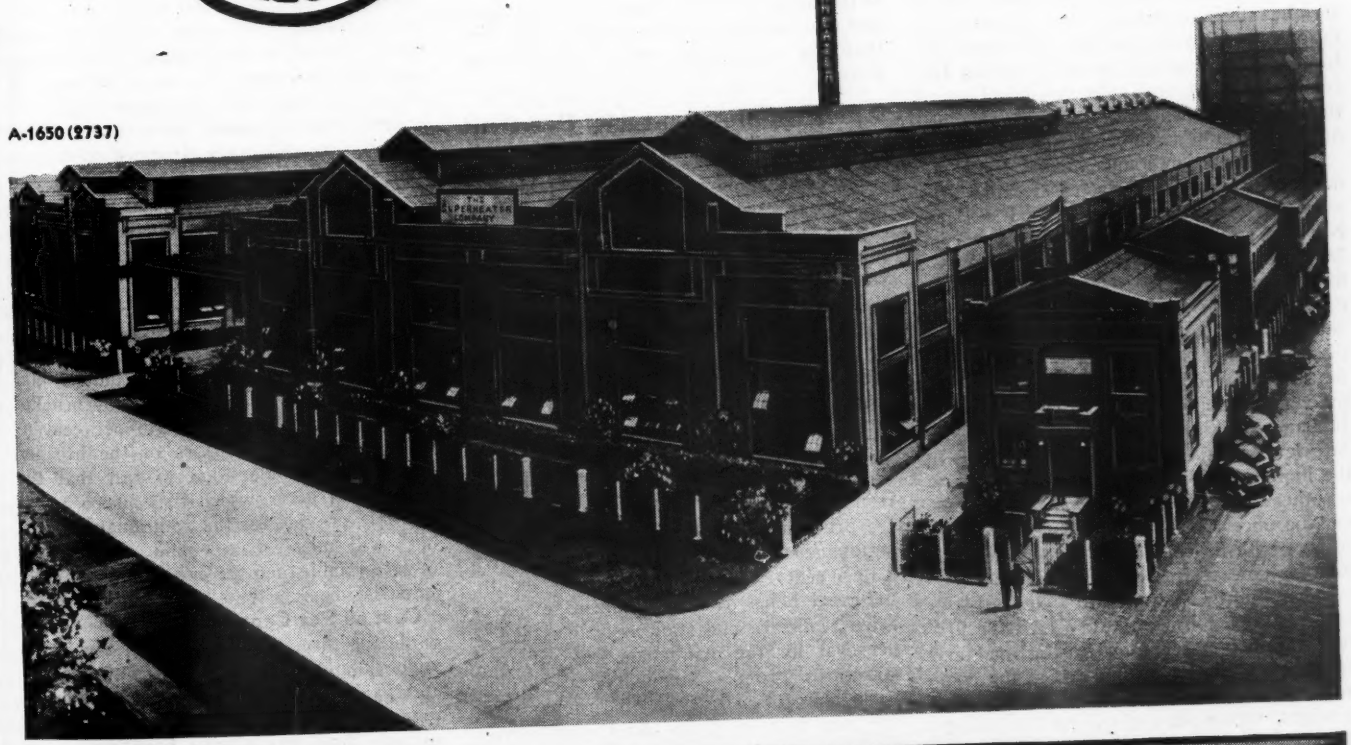
Pointing out that the restrictions on the movement of asphalt that were in effect last year, under which Public Roads Administration permits were required for its shipment, will not be operative in 1944, while the repair and construction of highways is expected to be increased, provided manpower is available, Col. Johnson stressed the importance of speeding up the transportation of asphalt. A great contribution to that end could be made by the state officers concerned, he suggested, if their testing procedures could be accelerated so certification of the contents of cars for unloading could be had without delay. Equipment can be used to greater advantage also, he indicated, if shippers are notified promptly when weather conditions or other circumstances interfere with the unloading of cars at destination, so shipping schedules may be adjusted to avoid accumulation of cars at such points.

News Department continued on next left-hand page

Do not scrap old superheater units . . . it wastes material. Have old superheater units re-manufactured at our plant . . . serviceable tubing is reclaimed in re-manufacturing process, with a substantial saving in new material—STANDARDIZE ON THIS SERVICE.

ELESCO

A-1650 (2737)



SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Blvd., CHICAGO
• • •
Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

GENERAL NEWS

Ex Parte 148 Rate Suspension Extended

Date put off to year's end, with roads' consent; objections are noted

Suspension for another six months, that is, through December 31, of the freight rate increases allowed by the Interstate Commerce Commission in 1942 in its Ex Parte No. 148 proceedings has been ordered by the commission. This order, made public May 15, followed the filing of replies to a "show cause" order indicating the probability of such action, and extends the period of suspension which began May 15, 1943.

Find Earnings Still Adequate—In the report accompanying the order extending the suspension the commission indicated its view that, although the railroads' net operating income and net revenue from railway operations "have shown a definite downward trend in recent months, the revenues received by the railroads from their present freight rates and charges under present conditions, and, so far as we can reasonably foresee, for the period to and including December 31, 1944, will meet the objectives of the national transportation policy as defined in the Interstate Commerce Act."

The commission found further that "under conditions presently foreseeable" the increases originally allowed in Ex Parte No. 148 and suspended May 15 last year "are not necessary or justified." It referred to the reply filed for the railroads, except the Central of New Jersey, in which, as noted in *Railway Age* of May 6, page 860, they consented to the further extension of the suspension of the increases, but reserved the right to apply to the commission before January 1 for an increase in their general rate level, "either by the reinstatement of the increases now under suspension herein, or otherwise," depending upon the outcome of "the uncertainties now facing them with respect both to their costs of operation and their volume of traffic."

Permanent Suspension Denied—As reported in the issue of May 13, page 914, the National Association of Railroad and Utility Commissioners had urged the commission to cancel the Ex Parte 148 increases outright, rather than to extend the suspension period.

Their complaint was: "The continuous threat of what was intended as 'emergency' rates, by periodic suspensions long past the emergency which brought them into existence, would constitute a new and dangerous technique in rate-making, never contemplated by Congress, inimical to business confidence, unneeded by the carriers, and destructive of regulatory practices proved fair and adequate over the years." Of this contention the commission's report said: "No such claims are made by any of the many other parties. The question of the permanent suspension of the increases is beyond the issue raised by the order to show cause."

Trucks' Competitive Difficulties—The commission's report referred also to the reply of the American Trucking Associations, in which that organization asked that the proceedings be reopened to investigate its contention that l. c. l. traffic by rail fails to pay its proper share of railroad expenses, and that meanwhile the increases under suspension be allowed to become effective again, as to l. c. l. freight. Discussing this request, the report pointed out that "substantially the same issue" has been raised in the pending general class rate investigation, No. 28300, which has been set for argument.

"The representations here made by the motor carriers are grave and are of deep concern to the regulatory authorities," the commission said, but "before any mandatory order looking to the relief here suggested could be made, the entire character of the proceeding would have to be changed, and that perhaps would consume more time than the suspension period here contemplated."

April Employment 4.92 Per Cent Above April, 1943

Railroad employment increased another 0.96 per cent—from 1,399,848 to 1,413,349—during the one-month period from mid-March to mid-April, and the April total was 4.92 per cent above the comparable 1943 figure, according to the latest summary of preliminary reports prepared by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics. The index number, based on the 1935-1939 average as 100 and adjusted for seasonal variation, was 140.7 for April, the same as March's but up 6.6 per cent from April, 1943's 134.1.

April employment in all groups except maintenance of equipment and stores (down 0.3 per cent) was above the previous month, the range being from 0.3 per cent for executives, officials, and staff assistants to 3.27 per cent for the maintenance of way and structures group. Meanwhile all groups were above April, 1943, the range being 0.99 per cent for train and engine service to 7.69 per cent for maintenance of way and structures.

Ohio Valley Board Meeting

The Ohio Valley Transportation Advisory Board will hold its next meeting at Indianapolis, Ind., on June 13. Col. J. Monroe Johnson, director of the Office of Defense Transportation will be the guest speaker.

Sponsor Rail Labor's Social Insurance Bill

Wagner and Wheeler join in proposing legislation for liberalized benefits

Railroad labor's "social insurance bill," which had been in the making for some time, was introduced last week in the Senate by Senator Wagner, Democrat of New York, for himself and Senator Wheeler, Democrat of Montana. It is S.1911, covering 206 pages; and an accompanying announcement stated that a like measure would be introduced in the House by Representative Crosser, Democrat of Ohio.

Payroll Tax Would Rise—Except for the elimination of the workmen's compensation feature, the bill would enact into law the program of liberalized Railroad Retirement Act and Railroad Unemployment Insurance Act benefits which has been under discussion in union circles for some time, as noted in the *Railway Age* of January 30, 1943, page 296, and in the issue of March 11, page 518. To support the liberalized benefits under the retirement system, the payroll taxes designed to finance that system would be increased from the present 6½ per cent of payroll to 11½ per cent with provisions for further increases to a maximum of 12½ per cent for 1949 and thereafter.

These taxes are paid half by the employees and half by the carriers. As noted in the *Railway Age* of April 1, page 654, the latest actuarial report on the pension system indicated that the present benefits would require a tax of 10.45 per cent to maintain them. Sponsors of the broader program are understood to feel that the increase in taxes which they propose will not only provide for the additional benefits, but will also make some contribution toward establishing the system on a sounder actuarial basis.

Cost 60 Per Cent on Railroads—Meanwhile the three per cent payroll tax levied under the Unemployment Insurance Act and paid entirely by the railroads would remain unchanged. The unemployment insurance fund has always been greatly in excess of present benefit requirements, yet Chairman Murray W. Latimer of the Railroad Retirement Board has opposed carrier efforts to have the tax reduced. As set up in the bill, the new program would thus involve total payroll taxes reaching a maximum of 15½ per cent, of which the railroads would pay 9¼ per cent.

Although the funds would be kept separate, the bill would consolidate into one

News Department continued on sixth right-hand page

law the provisions of the Railroad Retirement Act, the Carriers Taxing Act, the Railroad Unemployment Insurance Act, and the resolution covering the gathering of prior service records of prospective annuitants. The consolidation would make the Retirement Board, instead of the Bureau of Internal Revenue, the collector of the retirement tax, just as it now collects the unemployment tax.

Annuities for Survivors—Liberalized Retirement Act benefits would include new provisions with respect to annuities for surviving dependents. Here the benefit formula of the Social Security Act would be adopted, with a weighting to allow for the fact that the taxes under the railroad system are higher than under the general system.

Other proposals would liberalize provisions covering annuities for permanent disabilities, minimum annuities, and the definition of the "employee relationship" which governs the crediting of service prior to August 29, 1935. Also, there would be written into the law various Retirement Board rulings regarding the coverage of persons employed by railroad affiliates or contractors doing railroad work. Among other changes, the present exclusion of trucking would be eliminated; but railroad affiliates which are common carriers by water or air would be specifically excluded.

Additional benefits proposed under the Unemployment Insurance Act would include payments for periods of illness from non-occupational causes (accidental or otherwise) and for maternity leaves at the same rate and for the same number of days as for unemployment. Meanwhile the duration of benefits in a single benefit year would be increased from 100 to 130 days.

Early Consideration of Land Grant Repealer Expected

Discussing the legislative program as the House was preparing to adjourn over last week-end, Majority Leader McCormack listed H. R. 4184, the Boren bill to repeal remaining provisions of the land-grant-rate law, among measures which would be in order for consideration during the latter part of this week.

On the previous day, Representative Cox, Democrat of Georgia, had reported from the rules committee House Resolution 543, the rule providing for preferred consideration of the repealer. As noted in the *Railway Age* of May 13, page 914, the rule provides for two hours of debate after which the bill would be open for amendments.

Childe Comes Through Again

C. E. Childe, member of the Board of Investigation and Research, it appears, will come to the rescue of a representative as well as a senator when his help is needed to answer pronouncements in opposition to the point of view that the present freight-rate structure discriminates against the South. What he has done on several past occasions for Senator Stewart, Democrat of Tennessee, Mr. Childe has now done for Representative Kilday, Democrat of Texas.

Mr. Kilday made a couple of recent speeches about the matter, and was challenged by H. N. Roberts, chairman of the Texas-Louisiana Freight Bureau. Mr. Kilday turned the file over to the B. I. R., and Mr. Childe came through with a letter supporting Mr. Kilday. The latter inserted it in the appendix to the May 11 issue of the Congressional Record.

March Accident Statistics

The Interstate Commerce Commission on May 15 made public its Bureau of Transport Economics and Statistics' preliminary summary of steam railway accidents for March and this year's first quarter. The compilation, which is subject to revision, follows:

Item	Month of March		3 months ended with March	
	1944	1943	1944	1943
Number of train accidents*	1,483	1,511	4,231	4,428
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	96	140	294	341
Injured	103	113	251	305
Passengers on trains:				
(a) In train accidents*				
Killed	...	1	7	3
Injured	90	169	331	426
(b) In train-service accidents				
Killed	5	4	14	12
Injured	221	181	629	598
Travelers not on trains:				
Killed	2	1	5	2
Injured	80	96	273	305
Employees on duty:				
Killed	104	69	294	256
Injured	3,950	3,764	11,481	11,066
All other nontrespassers:**				
Killed	194	214	583	574
Injured	607	634	1,999	1,914
Total — All classes of persons:				
Killed	401	429	1,197	1,188
Injured	5,051	4,957	14,964	14,614

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Persons:				
Killed	173	179	525	496
Injured	380	389	1,259	1,163

I. C. C. Orders Intrastate Fares Increased in South

Railroads engaged in intrastate transportation of passengers in Alabama, Kentucky, Tennessee and North Carolina have been ordered by the Interstate Commerce Commission to "cease and desist" on or before July 1, "from practicing the undue prejudice and preference and the unjust discrimination" found by the commission to result from the refusal of the regulatory authorities of those states to authorize increases in intrastate passenger fares to the level of the interstate passenger fares approved by the commission in its Ex Parte No. 148 proceedings, which have been in effect since February 10, 1942.

This order to the railroads to put the intrastate fares on a basis of parity with interstate fares, over the objections of the state commissions, was entered after the expiration of a 30-day period following service on them of the I. C. C.'s report finding that the existing lower fares are discriminatory. Noting that no adjustment of the intrastate fares had been made in conformity with its findings, and as contemplated when the customary 30-day interval was allowed, the commission has followed its report with a mandatory order.

At the same time the commission has denied petitions of the four state commissions and of the Office of Price Administration for reconsideration of the No. 29000 and related proceedings, in which these intrastate fares were investigated. The O. P. A. had intervened in the proceedings on the ground that the proposed increase would be "inflationary." The railroads concerned supported the I. C. C.'s findings, which came after its intervention was sought when the state commissions had declined to make the increases effective.

April Export Freight

There were 148,256 cars of export freight, excluding coal and grain, handled through United States ports in April, compared with 99,596 cars in April, 1943, or an increase of 49 per cent, according to the Association of American Railroads.

Export grain unloaded at the ports totaled 2,390, compared with 5,607 in April, 1943, or a decrease of 57 per cent. In addition, the railroads handled 728 carloads of coastal freight in April, compared with 452 in the same month in 1943, or an increase of 61 per cent.

The total of 151,374 cars of export and coastal freight, excluding coal, handled through the ports in April represented an average daily unloading of 5,046 cars. This was the second successive month in which the average unloadings have exceeded 5,000 cars per day. "All ports were in a completely 'liquid' condition during the entire month," the A. A. R. statement said.

Retirement Payments Total $11,261,000 in March

Payments under the retirement act totaled $11,261,000 in March, according to the Monthly Review of the Railroad Retirement Board. Decreases were noted in all classes of benefits, due to fewer certifications. Those of employee annuities fell, by almost 25 per cent, to 1,317. At the end of the month 137,673 employee annuitants were on the rolls, receiving an average payment of $66.48 monthly. Pensioners numbered 21,661 and received an average of 59.12. Survivor and death-benefit annuitants numbered 3,621 and 563, respectively. Certifications of lump-sum death benefits dropped by 2 per cent to 1,297. The average payment was $69.53.

The number of unemployment insurance claims and payments in March was the second highest of the current benefit year, and the amount paid was larger than in any month since April 1943. Applications for certificate of benefit rights, however, were the fewest so far recorded, numbering only 380. March claims for benefits totaled 3,240. Payments certified numbered 2,800 and amounted to $79,000, almost $13,000 more than in February. Accounts were opened for 361 railroad workers, and 46 accounts were exhausted.

During the period from May 16, 1943 to April 1, 1944, the Review states, 36,000 Mexican workers were brought into the United States of whom 11,000 have returned to Mexico. On April 1, 23,000 Mexican

Nationals were in service on 24 railroads, chiefly in the West and Southwest. At the end of the first quarter of 1944, placements of Mexican workers were verified by Railroad Retirement Board regions as follows:

Atlanta	150
New York	1,950
Cleveland	2,050
Chicago	3,400
Dallas	2,700
Kansas City	2,200
Minneapolis	300
Denver	750
San Francisco	21,700

Poor Flagging, No Block System, Result in Collision

While the immediate cause of a rear-end collision on the New York, Chicago & St. Louis at Yellow Creek, Ohio, on March 27 was failure to provide adequate flag protection, the report of the investigation conducted by the Interstate Commerce Commission under the supervision of Chairman Patterson concluded with a recommendation that the carrier establish an "adequate block system" in that locality, since, it held, under such conditions the following train would not have been allowed to enter a block occupied by a preceding passenger train, and the collision thus "would not have occurred."

The accident, which took place at 2:20 a. m., was the result of a standing eastbound extra passenger train being struck in the rear by an eastbound freight train which was moving at about 20 m. p. h. The freight was made up of 66 cars and caboose, while the passenger train consisted of 1 baggage car, 1 Pullman sleeping car, 3 troop sleeping cars, 1 baggage-dining car, 4 Pullman tourist cars, 1 dining car, and 4 Pullman tourist cars, in the order named. All the cars were of steel construction. The rear car of the passenger train was badly damaged in the collision, and the other cars were slightly damaged. This train remained on the track. The engine and the first five cars and the front truck of the sixth car of the freight were derailed and the engine and first five cars were badly damaged. One employee was killed, and 15 passengers and 7 employees were injured.

Relied on Fusee as a Flag—The passenger train had stopped on the so-called "YC" running track, an auxiliary track 4.9 miles long which was parallel to the main track in the vicinity of Yellow Creek, at which point an overhead coaling station spanned the tracks. The tracks in this locality were tangent and practically level. The marker lights at the rear of the passenger train were lighted. The flagman of that train had relied on a 5-minute yellow fusee and signals given with a lighted red lantern to protect his train, and had entered the rear car of the train before the collision occurred, having assumed that the warning signals had been observed when the headlight of the following train flashed off and on. The flagman was an experienced employee, and an adequate supply of fusees was available.

Trains were operated on the "YC" running track by timetable and train orders only. Both trains involved had orders directing them to use this track. "The only provision for spacing following trains was by the time-interval method enforced by operators at open stations, and by flagmen's signals," the commission's report pointed out. In this case the preceding train passed the last open office west of the point of the accident 10 min. ahead of the following train, but, the report went on to say, "this time-spacing method did not provide means for spacing trains except at open offices, and the collision occurred before the trains reached the east end of "YC" running track, . . . where trains enter automatic block signal territory. Unless the following train received flagging signals, there was no provision that prevented this train from moving at the maximum authorized speed" of 30 m. p. h. from the last open office to the east end of "YC" running track, it pointed out.

The main track in this area is protected by automatic block signals, but the "YC" track is not so equipped.

Southern Diesel Case Settled

Southeastern railroads have granted the concessions previously made by Eastern and Western roads, thus settling the so-called Diesel case on a basis more liberal than that recommended in the May 21, 1943, report of a National Railway Labor Panel emergency board headed by Frank M. Swacker. The settlement came out of the mediation proceedings instituted by

* * * *

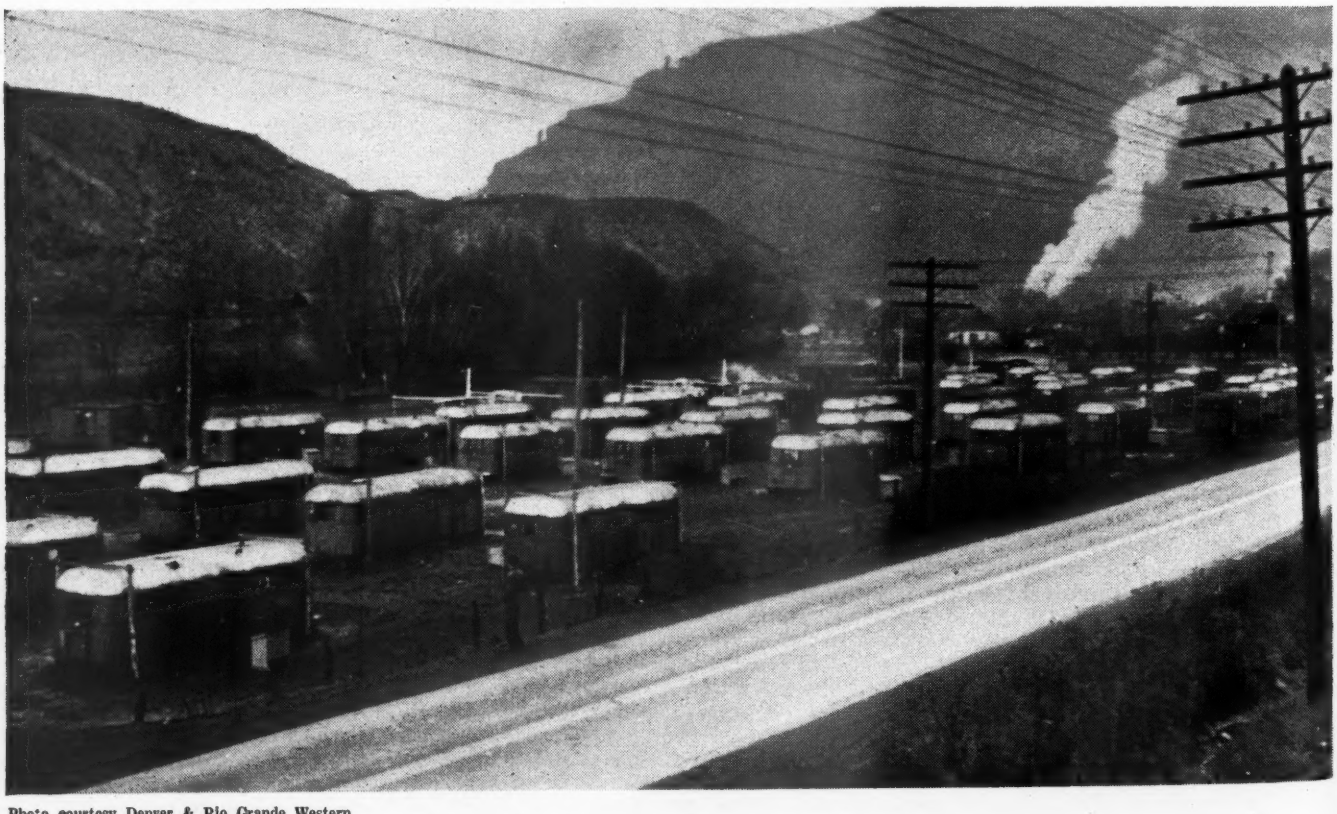
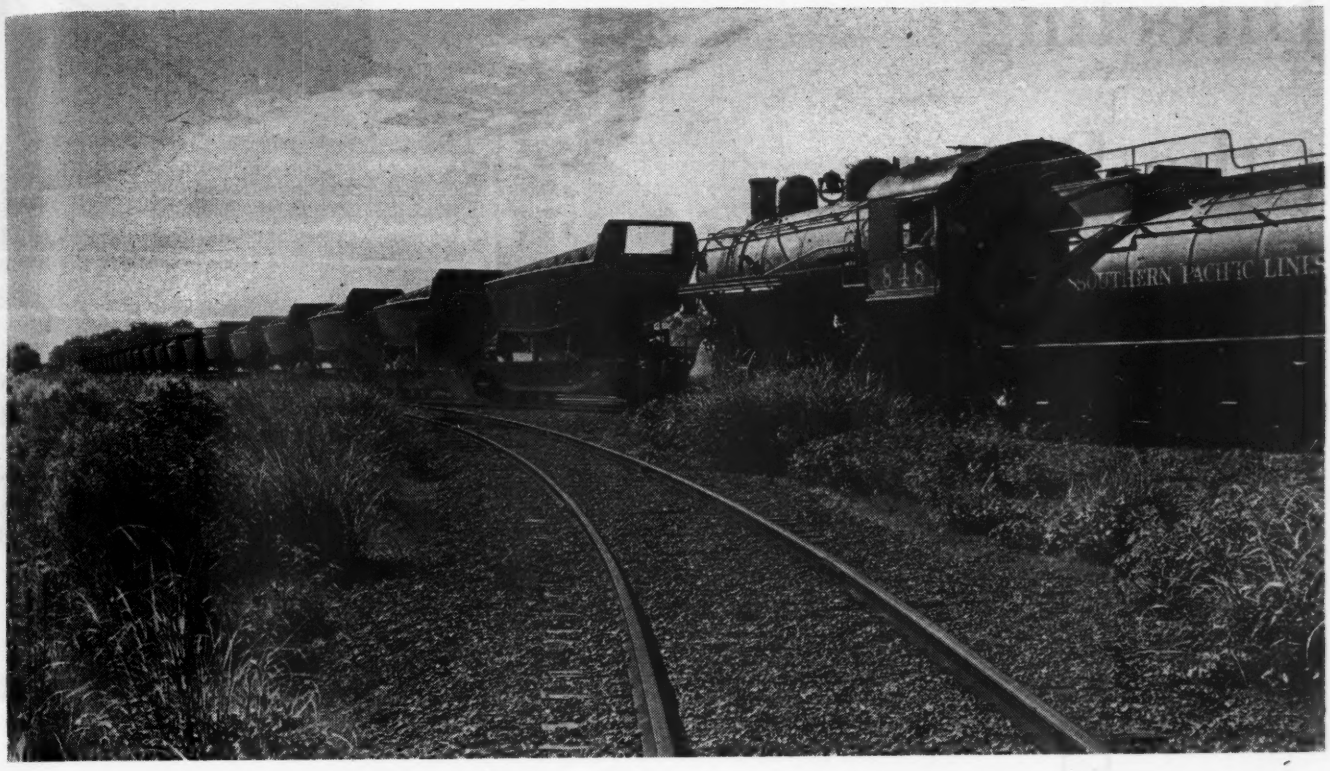


Photo courtesy Denver & Rio Grande Western

Trailers Give Temporary Homes to Railroaders

To relieve a local housing shortage and to alleviate necessity for commuting to points some distance away until houses become available, Rio Grande employees and their families have set up housekeeping in these 9 ft. x 20 ft. trailers at Helper, Utah. There is a semblance of home in this 50-unit camp, each trailer being equipped with electric lights, fuel oil heater, gasoline range, ice box, sink and a 15-gal. storage tank for water. There are three main utilities buildings, including showers and a laundry with 8 stationary tubs. The buildings have automatic oil heat. A second camp—of 15 units—has been built at Minturn, Colo. Both camps are under supervision of the Federal Public Housing Authority.

News Department continued on fifth right-hand page



"Small Fry" Landing Boats En Route to War Theatres

Known as "LCVP," these Higgins landing craft vehicle personnel boats equipped with Gray Diesel engines, are ready to be dropped into the water from transports upon arrival at destination. Freight movement is expected to be heavy, with the Navy calling for 55,000 landing craft this year.

* * * *

the National Mediation Board early this month.

As noted in the *Railway Age* of May 6, page 872, the additional concessions, now made by roads in all territories, came out of the further negotiations suggested by President Roosevelt after D. B. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen, had reported to him that the Swacker board's recommendations were unsatisfactory. The final settlement was outlined in detail in the *Railway Age* of September 4, 1943, page 380, where the Eastern agreement was reported.

Steam Wages for Diesel "Firemen"—Generally the Swacker board made findings which have the effect of putting an additional man on multiple-unit Diesel-electric locomotives in high-speed, through passenger service; and it recommended the extension of the weight-on-driving-wheels gradations of all types of locomotives beyond the upper limits provided in the previous wage schedules. The additional concessions involve the extension of steam firemen wage rates to Diesel "firemen" in all road freight and passenger service; upgrading of electric "firemen"; and more liberal increments in the daily wages of all engine-service employees as the weight-on-driving-wheels gradations are extended above the previous upper limits.

While, as noted above, the Southeastern agreement is on a like basis, the railroads there did get one concession in that the wage scales in four locomotive weight brackets (which were previously higher and would have remained higher after application of the settlement) were reduced to the Eastern and Western basis. There was not much money involved, however, since only about 200 locomotives are affected.

Also, the Southeastern agreement embodies some clarifying language with respect to the provision calling for the additional man on passenger Diesels. It has been estimated that the settlement will augment their wage bill by about $250,000 a year. The new steam rates are retroactive to March 16, 1944, and the Diesel rates to August 29, 1943.

Superintendents Meet in Chicago

The forty-ninth annual meeting of the American Association of Railroad Superintendents, held at the Stevens Hotel, Chicago, on May 9, 10 and 11, had the largest attendance in recent years, 186 members and 97 visitors, who engaged in extended discussion of the six committee reports, which were supplemented by nearly 20 addresses and a forum on accident prevention. Two evening business sessions were held in order that the full program might be completed within the three days.

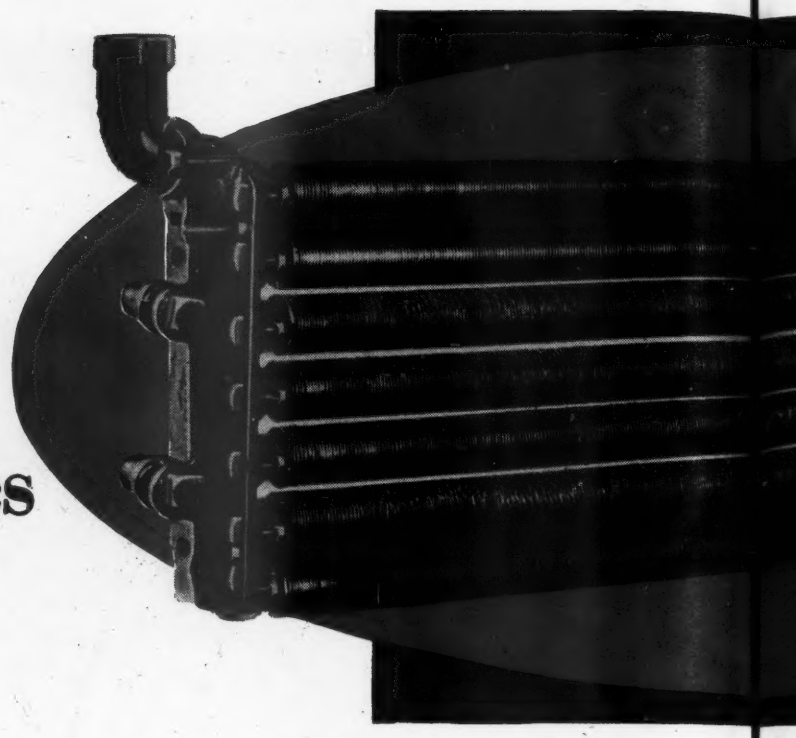
In view of the illness of President E. C. Gegenheimer, general superintendent, Pennsylvania, Williamsport, Pa., the meeting was presided over by E. J. Stubbs, superintendent of transportation, Erie, Cleveland, Ohio, who was first vice-president. At the annual election, Mr. Stubbs was elected president of the association for the coming year. K. A. Borntrager, superintendent, New York Central, Albany, N. Y., was elected first vice-president; O. L. Gray, assistant to vice-president, Atchison, Topeka & Santa Fe, Chicago, was elected second vice-president; L. B. Kendall, assistant general manager, Chicago & North Western, Chicago, was elected third vice-president, and R. O. Jensen, assistant superintendent, M. St. P. & S. S. M., Chicago, now on military service aboard, was elected fourth vice-president. The directors elected were as follows: W. S. Butler, superintendent, C. & O., Russell, Ky.; F. T. Buechler, superintendent, C. M. St. P. & P., Green Bay, Wis.; T. M. Flynn, superintendent, Northern Pacific, Minneapolis, Minn.; O. C. Lott, superintendent transportation, B. & O., Pittsburgh, Pa.; S. M. Gossage, assistant to vice-president, Canadian Pacific, Toronto, Ont.; and H. E. Bixler, superintendent freight transportation, N. Y. N. H. & H., New Haven, Conn. At the annual luncheon Col. J. M. Johnson, director, Office of Defense Transportation and member of the Interstate Commerce Commission, addressed a capacity audience of 525 on the transportation problems of today.

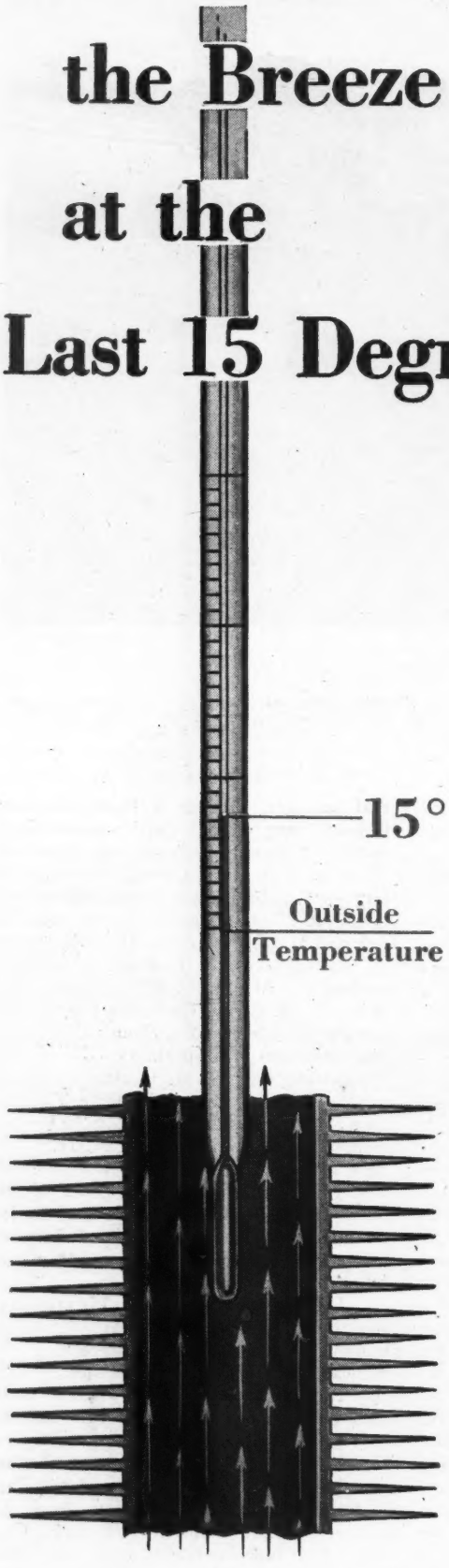
Col. Johnson paid tribute to his predecessor, the late Joseph B. Eastman. While not minimizing the problems confronting the railways in handling the unprecedented wartime traffic, Col. Johnson expressed his complete confidence in the ability of the railway men to accomplish the job.

Other addresses presented at the meeting were as follows: The Superintendents' Part in the Railroads' War Program, by F. G. Gurley, vice-president, A. T. & S. F., Chicago; The Superintendents' Interest in Public Relations, by Robert S. Henry, assistant to president, A. A. R., Washington; Recent Developments in the Transportation of Explosives, by E. J. League, inspector, Bureau of Explosives, A. A. R., Chicago; The Transportation Corps in Action, by Maj. Stephen R. Truesdell; What the Railways

News Department continued on second left-hand page

Directing the Breeze at the Last 15 Degrees





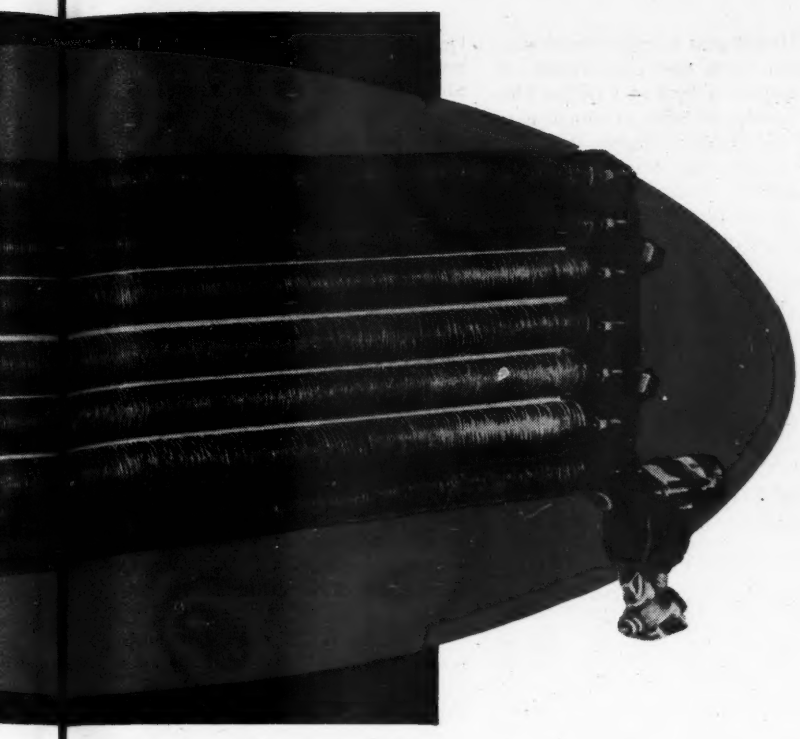
THE efficiency of an Aftercooler is gaged by its ability to cool compressed air to outside (atmospheric) temperature.

Most of the heat, generated by compressing air, is radiated in transit between the compressor discharge and the outlet of the first main reservoir. On normal installations the air is thus cooled to within fifteen degrees of outside temperature.

However, it is this last fifteen degrees that must be lured away. Small as it is, this heat can carry the harmful quantity of vapor to the brake system, even in the most arid climate.

By strategic location of a large, efficient radiating area, the Aftercooler *directs the breeze at the last fifteen degrees* and precipitates the moisture that might later freeze or saturate a single valve, and thus impair the brake functions of the train.

Westinghouse Air Brake



Air Stream Radiation

Compact Radiating Area

Finned copper tubing consolidates the largest practicable radiating area into the smallest possible space.

The compact unit comprises three times as much radiating surface as provided by iron pipe, plus the advantages of location, accessibility, and less likelihood of internal frosting.

Air Stream Radiation

Front end location exposes Aftercooler to both frontal and lateral air streams.

Full benefit of prevailing winds is gained, regardless of their direction.

Fins are scientifically spaced to avoid hot air pocketing.

Remoteness from boiler eliminates possibility of re-heating.

Company · Wilmerding. Pa.

Face in Operating Personnel, by Fred M. Wilson, assistant chairman, Western Association of Railway Executives, Chicago; Reducing Labor Turnover, by J. P. Kiley, assistant general manager, C. M. St. P. & P., Chicago; Training Schools for New Employees, by Wayne Johnston, assistant vice-president, Illinois Central, Chicago; Results to be Gained from a Training Program for Employees, by H. A. McAllister, assistant to president, Erie, Cleveland, O.; Communication Facilities as an Aid in Transportation Operations, by T. P. Brewster, superintendent telegraph, A. T. & S. F., Chicago; Superintendent's Relation to Current Problems in Freight Claim Prevention, by A. L. Green, special representative, freight claim division, A. A. R., Chicago; Visual Instruction in Train Rules, by C. J. Millikin, superintendent, Pere Marquette, Grand Rapids; Freight Car Utilization, by W. C. Kendall, chairman, car service division, A. A. R., Washington; What Shippers Expect from Transportation Officers, by A. H. Schwietert, traffic director, Chicago Association of Commerce; and Fuel Conservation, by J. R. Jackson, engineer of tests, Missouri Pacific, St. Louis, Mo.

Detailed reports of the meeting will be given in succeeding issues.

L. I. Fosters Model Victory Garden Along Right-of-Way

A familiar sight to Long Island Railroad passengers traveling to and from the Rockaways is a cultivated stretch along the right-of-way, near Woodhaven. Leased without cost to residents by the railroad this co-operative victory garden is now worked by 20 families.

Known as the "98th Street Victory Garden Club," these amateur gardeners recently expressed their appreciation to the railroad for the use of the land, praising the Long Island for "sponsoring a program so timely and patriotic."

In line with this policy, the railroad is urging its 7,225 employees to plant similar gardens of their own, or to co-operate in community gardens with neighbors. A special pamphlet has been prepared by the railroad and distributed to every employee, in co-operation with the Department of Agriculture and the Office of Civilian Defense. The booklet includes a sample garden planned to supply a family of four, with enough of a variety of vegetables for the entire summer. Planting dates are indicated and all pertinent gardening information is set forth.

Freight Car Loading

Freight carloadings for the week ended May 13 were not available at the time this issue went to press.

Loading of revenue freight for the week ended May 6 totaled 836,978 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, May 6			
District	1944	1943	1942
Eastern	163,451	159,203	161,628
Allegheny	191,205	180,781	187,523
Pocahontas	54,811	47,794	57,012
Southern	123,653	120,320	124,827
Northwestern ..	120,922	115,259	133,912
Central Western	117,530	119,482	110,545
Southwestern ..	65,406	73,699	63,839
Total Western Districts	303,858	308,440	308,296
Total All Roads	836,978	816,538	839,286
Commodities			
Grain and grain products	38,388	45,621	35,143
Live stock	15,857	15,688	11,690
Coal	172,106	142,140	167,336
Coke	14,407	13,523	14,289
Forest products.	43,657	44,792	50,618
Ore	69,083	66,979	86,800
Merchandise l. c. l.....	106,346	98,125	98,430
Miscellaneous ..	377,134	389,670	374,980
May 6	836,978	816,538	839,286
April 29	851,857	788,789	858,911
April 22	839,954	794,163	861,357
April 15	799,965	780,908	846,505
April 8	789,324	789,019	814,096
Cumulative Total 19 Weeks ...	14,996,727	14,402,500	15,205,395

Southwest Board Meeting

The Southwest Shippers Advisory Board will hold its sixty-sixth regular and twenty-first annual meeting at Ft. Worth, Tex., on June 1. Speakers will include Col. J. Monroe Johnson, director of the office of Defense Transportation; G. H. Shafer, president of the National Association of Shippers Advisory Boards and general traffic manager of the Weyerhaeuser Sales Company; and A. W. Vogtle, manager of traffic and sales of the DeBardeleben Coal Corporation. R. E. Clark, manager of the Car Service division of the Association of American Railroads, will discuss general transportation conditions while C. P. Wasson, district manager of the Car Service division at Dallas, Tex., will present transportation conditions in the Southwest.

Returns Due July 15 to Western Grain Rate Parity Order

Upon request of the railroads concerned, the Interstate Commerce Commission has postponed to July 15 the date for filing returns to the "show cause" order concerning the so-called parity provisions of its order in the No. 17000 proceedings, part 7, dealing with grain movements in the western district. As reported in *Railway Age* of April 22, page 795, such returns were first due May 15. The parity provisions have been under suspension, as applied to certain feed grains, but the commission recently objected to a further extension of the suspension, taking the position that a permanent adjustment should be worked out to meet the needs of the traffic.

C. & E. I. Management Wins Proxy Contest

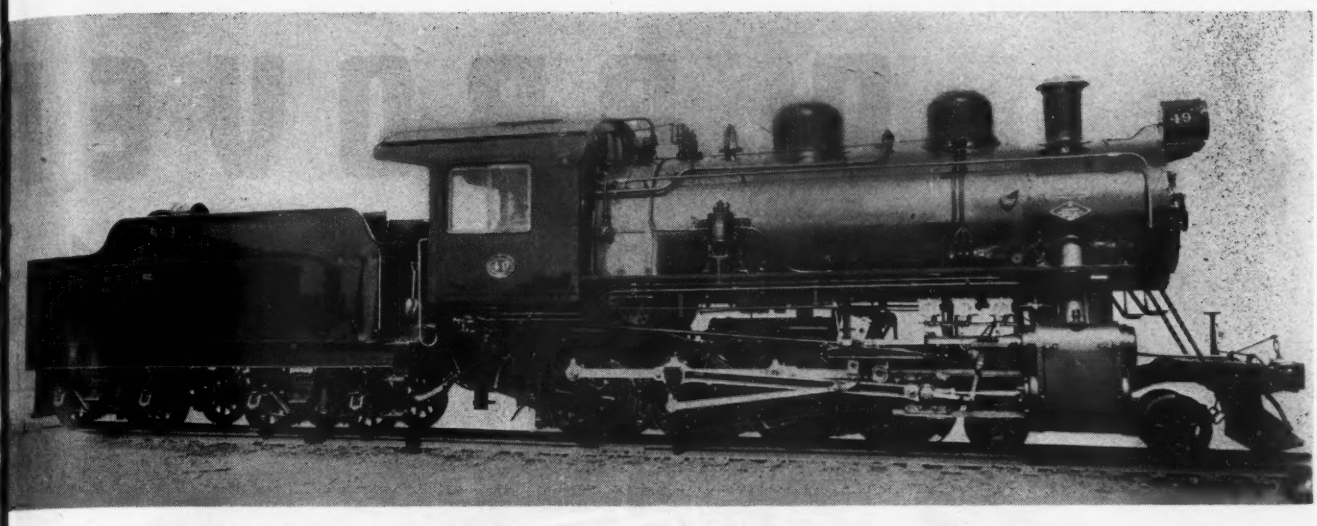
The proxy contest for control of the Chicago & Eastern Illinois ended at the annual stockholders meeting at Chicago on May 12 when the management received a larger number of proxies than V. V. Boatner, who headed a minority group seeking to increase its representation on the board. When the count of proxies showed 427,024 for management as against 230,349 for Mr. Boatner, he withdrew his opposition and the board of directors was re-elected. Directors re-elected all officers and three members of the executive committee. R. F. Carr, chairman of the Dearborn Chemical Company, and A. S. Igleheart, president of General Foods Corporation, were elected members of the executive committee to succeed Bryan S. Reid, resigned, and Mr. Boatner.

As noted in the issue of May 13, Mr. Boatner on May 9 wrote Senator Wheeler, chairman of the Senate committee on interstate commerce, asking that he set aside the report of the majority of the subcommittee which heard his allegations that Secretary of Commerce Jones had attempted to control the management policies of the Chicago & Eastern Illinois, in order that the full committee might consider them. Chairman Wheeler's reply was written on the day of the stockholders' meeting at which the road's board of directors was re-elected.

He informed Mr. Boatner that Senator Johnson, as chairman of the subcommittee, had given Mr. Boatner and his attorney all the time they desired to submit their views, and that he had "the greatest confidence" in Mr. Johnson's "good judgment, honesty and integrity. I have no doubt," he added, that Senator Johnson "carefully

Photo Courtesy Long Island R. R.

A Typical Saturday Afternoon for Model Victory Gardeners Near Woodhaven, Queens



Built in Canada for Jamaica

Six standard-gage 4-8-0's are being built by the Canadian Locomotive Company for the Jamaica Government Railway—the C. P. R. inspecting the materials and supervising the erection. The locomotives operate at 190 Lb. boiler pressure, have 19-in. by 26-in. cylinders, 48-in. drivers and develop a tractive force of 32,870 lb.

* * * *

weighed your evidence and testimony and that he considered this matter in a fair and impartial manner."

"So far as I am concerned," Senator Wheeler concluded, the investigation was closed with the subcommittee majority's report, and Mr. Boatner's request for "a review of the entire situation" was denied.

Vacation Hearings Concluded

Hearings before an arbitration board of the National Mediation Board on disputes regarding pay for vacations for members of the Brotherhood of Locomotive Firemen and Enginemen, the Order of Railway Conductors and the Switchman's Union of North America on Western, Eastern & Southeastern railways which were begun at Chicago on May 4 before I. L. Sharfman, were concluded on May 15 with the presentation of oral argument. The arbitration board was granted an extension of time until May 27 to prepare its report.

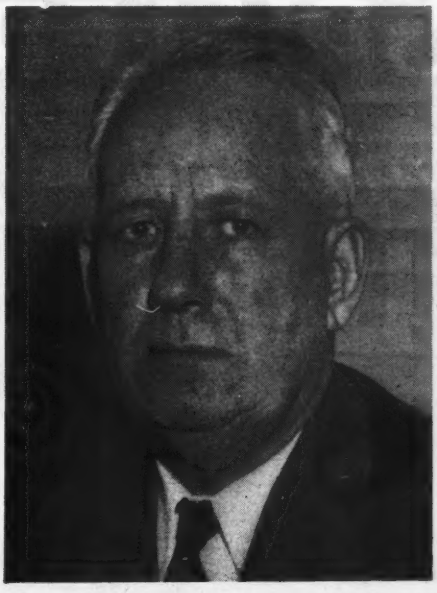
Oral arguments were presented by Harold C. Heiss, counsel for the labor organizations and Bruce Dwinell, counsel for the Carriers' conference committee's and general attorney of the Chicago, Rock Island & Pacific. Mr. Heiss argued that the pay for one week's vacation should be based on an employee's earnings, including overtime, allowances and arbitraries.

Mr. Dwinell, on the other hand, contended that the President, when he said that compensation for vacations should be based on hourly rates, did not have in mind earnings per hour including overtime, allowances and arbitration. If, he said, the purpose of a vacation is to restore energy, some work must be done to wear down the energy and consequently, any arrangement which provides pay for work not done goes beyond the meaning intended by the President. He urged the Board not to decide the issue on a strict legal interpretation of contracts but to weigh the arguments of both sides and determine a basis of compensation which will be fair to employers and employees alike during the war and after.

J. Elmer Monroe, assistant director of the Bureau of Railway Economics, who testified for the railroads, showed that, based on the average number of hours worked over a long period of years, a vacation allowance of seven basic days, as sought by the employees, would be greater than the normal weekly earnings of the average employee and that the carriers' proposal of six basic days is greater than a vacation allowance calculated on the basic hours actually worked. The carriers' proposal, he said, leads to somewhat less than average weekly earnings but weekly earnings include payments that should not be considered as part of an employee's allowance when on a vacation. The carriers' proposed vacation allowance, he said, is, on the average 87.3 per cent of normal weekly earnings, and 95 per cent of normal weekly earnings, excluding overtime.

Texan Takes Bureau of Service Directorship

The appointment of Virgil C. Clinger as director of the Bureau of Service of the Interstate Commerce Commission was noted in *Railway Age* of May 6, page 875. The position was made vacant by the acceptance of the former director, Homer C. King, of an appointment as executive assistant to the director of the Office of Defense Transportation, as previously reported here. The work of the Bureau of Service continues under the supervision of Commissioner J. Monroe Johnson, even though he has been relieved of his routine duties, as a member of the commission during his service as director of the O. D. T.



Harris & Ewing

Virgil C. Clinger

In coming to Washington, D. C., to fill his new post, Mr. Clinger is transferring his headquarters to that city after an absence of some 10 years, during which time he has been a service agent in the field service of the bureau, first in the Rocky Mountain territory, with headquarters at Denver, Colo., where he was stationed from 1934 to 1941, and then in the Texas territory, with headquarters at Dallas, Tex.

Mr. Clinger was born in San Antonio, Tex., January 11, 1890. He obtained his education in the public schools of that city and attended business college at Austin, Tex. In 1908 he entered the employ of the Southern Pacific, and so began seventeen years' work in yard and train service on this road, the International-Great Northern, and others, during which time he was located at various points in his home state.

In 1925 Mr. Clinger entered government service, being employed as an inspector of safety appliances in the Bureau of Safety of the I. C. C., for which work he first moved to Washington. His appointment to the field service of the Bureau of Service, mentioned above, came some nine years later.

North Western Patrons Measured for Seats

In an effort to determine specifications for the postwar railroad coach seat, the Chicago & North Western, in conjunction with the anthropology department of Harvard University, this week made a survey in the North Western's station at Chicago of the seating requirements of persons. As has been done on several other railroads, persons were asked to sit in a specially designed adjustable chair while measurements were made to determine the ideal height, width and depth for a coach seat. The re-

News Department continued on second left-hand page

A PROVEN
Helps
1603
HSGI
Reg. U.S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings
Finished Parts
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service
HUNT-SPILLER
Air Furnace
GUN IRON

MATERIAL

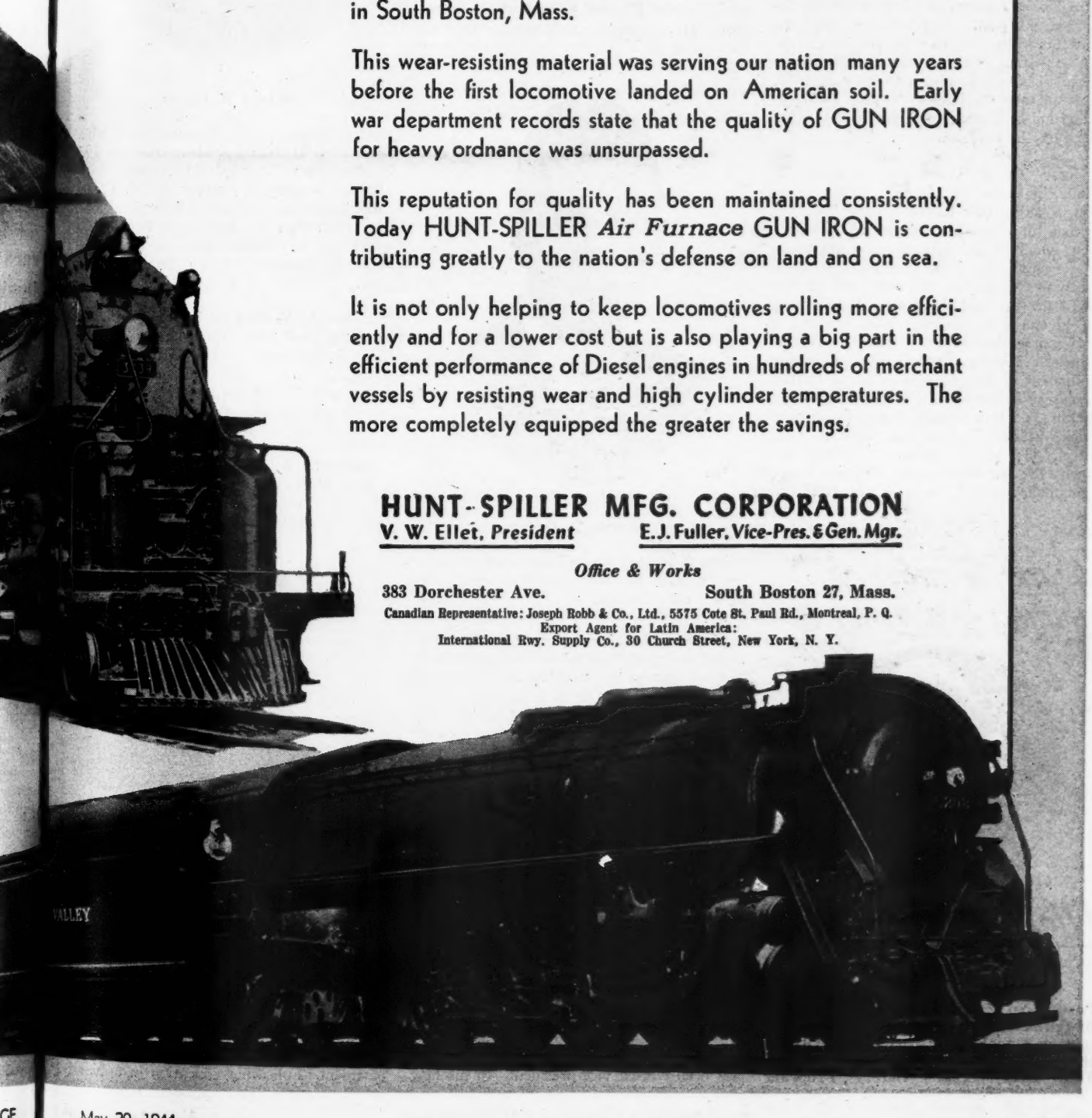
to Keep 'em Rolling

THE history of HUNT-SPILLER *Air Furnace* GUN IRON dates back to 1810 when Cyrus Alger established a foundry in South Boston, Mass.

This wear-resisting material was serving our nation many years before the first locomotive landed on American soil. Early war department records state that the quality of GUN IRON for heavy ordnance was unsurpassed.

This reputation for quality has been maintained consistently. Today HUNT-SPILLER *Air Furnace* GUN IRON is contributing greatly to the nation's defense on land and on sea.

It is not only helping to keep locomotives rolling more efficiently and for a lower cost but is also playing a big part in the efficient performance of Diesel engines in hundreds of merchant vessels by resisting wear and high cylinder temperatures. The more completely equipped the greater the savings.



HUNT-SPILLER MFG. CORPORATION

V. W. Ellet, *President* **E. J. Fuller, *Vice-Pres. & Gen. Mgr.***

Office & Works

383 Dorchester Ave. **South Boston 27, Mass.**

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

sults of the studies made by the University, in various cities, will be made available to all railroads.

Club Meetings

At the June 5, luncheon meeting of the Transportation Club of Atlanta, there will be an address on "The Cotton Textile Industry Goes to War," by T. M. Forbes, executive vice-president, Cotton Manufacturers Association of Georgia.

The New England Railroad Club has canceled its annual banquet and entertainment which had been scheduled for May 9, and has announced there will be no meeting of the club during that month, nor throughout the summer. The next regular monthly meeting will be held October 10.

---

32 YOUNG WOMEN, in sky-blue uniforms, now serve the traveling public at the Nashville Union Station. It is reported in the current Louisville & Nashville Magazine that this group, engaged in various capacities—assistant ticket agent, information clerk, ticket clerk, reservation clerk, PBX operator, and the like—represents the largest group of women employed in any ticket office on the railroad.

FIRST TRICK TOWERMAN, Chester D. Stong, stationed at Lebanon Valley Junction, Reading Belt Railroad since 1940, has in that time reported 181 defects in equipment which he has noticed on freight trains passing his office. It is noted in the Reading Railroad Magazine that Mr. Stong has saved the railroad thousands of dollars by his alertness in stopping such trains and thus preventing possible derailments and injuries. He has reported the following equipment defects to date: Lading shifted, 12 cases; broken brake hanger, 5; brakes sticking, 6; brake beam down, 48; broken truck, 9; hot journal, 17; broken tread wheel, 43; wheel sliding, 2; safety bar down, 18; car leaking, 8; chipped wheel, 6; damaged car, 4; and flat wheels, 3.

* * *

Poster, No. 250, Now Being Distributed by the Committee on Education, Association of American Railroads, Constitutes the June Installment of the "All the Year—Every Year" Safety Program

Supply Trade

Edward J. O'Donnell has been appointed manager of the railroad department of the **Graybar Electric Company.** He will continue to make his headquarters in Chicago.

Willard V. Merrihue has been appointed manager of the advertising and sales promotion divisions of the apparatus department of the **General Electric Company** and a member of the apparatus sales committee of the company. He was previously assistant to the manager of the apparatus publicity divisions.

George L. Green has been appointed sales manager, railroad and allied industries, for the **Elastic Stop Nut Corporation.** Mr. Green was graduated from Yale University in 1931. For the past ten years he has been associated with the Union As-

George L. Green

bestos & Rubber Co., Chicago, as sales engineer, salesman and assistant vice-president, railroad sales.

Bowser, Inc. has set up a new and enlarged railroad division to supply railroads with equipment for handling liquids. **Harry B. Thoreson** has been appointed special railroad representative for the Chicago area. Mr. Thoreson started his career as a stenographer in the traffic department of the Great Northern at Chicago in 1911 and on September 1, 1913 resigned to enter the employ of the Spencer Otis Company. Subsequent to 1916, when this company was reorganized to form the DeRemer-Blatchford Corporation and still later when this company became the Blatchford Corporation, Mr. Thoreson engaged in sales and service work and acted as secretary of both companies. In 1943 he entered business for himself, handling railroad supplies.

Robert S. Peare, manager of publicity and broadcasting for the **General Electric Company** since 1940, and chairman of the company's general advertising committee, has been elected vice-president. In his new position, he will direct the company's advertising, broadcasting, and general publicity activities as a member of the president's staff. Mr. Peare began his service with General Electric in the accounting depart-

Robert S. Peare

ment in August, 1922, following his graduation from Michigan University. In 1926 he was elected secretary-treasurer of the Maqua Company in Schnectady, N. Y., and three years later appointed its general manager. In 1934 he was elected president, which post he continues to hold, and in 1940 appointed General Electric publicity manager.

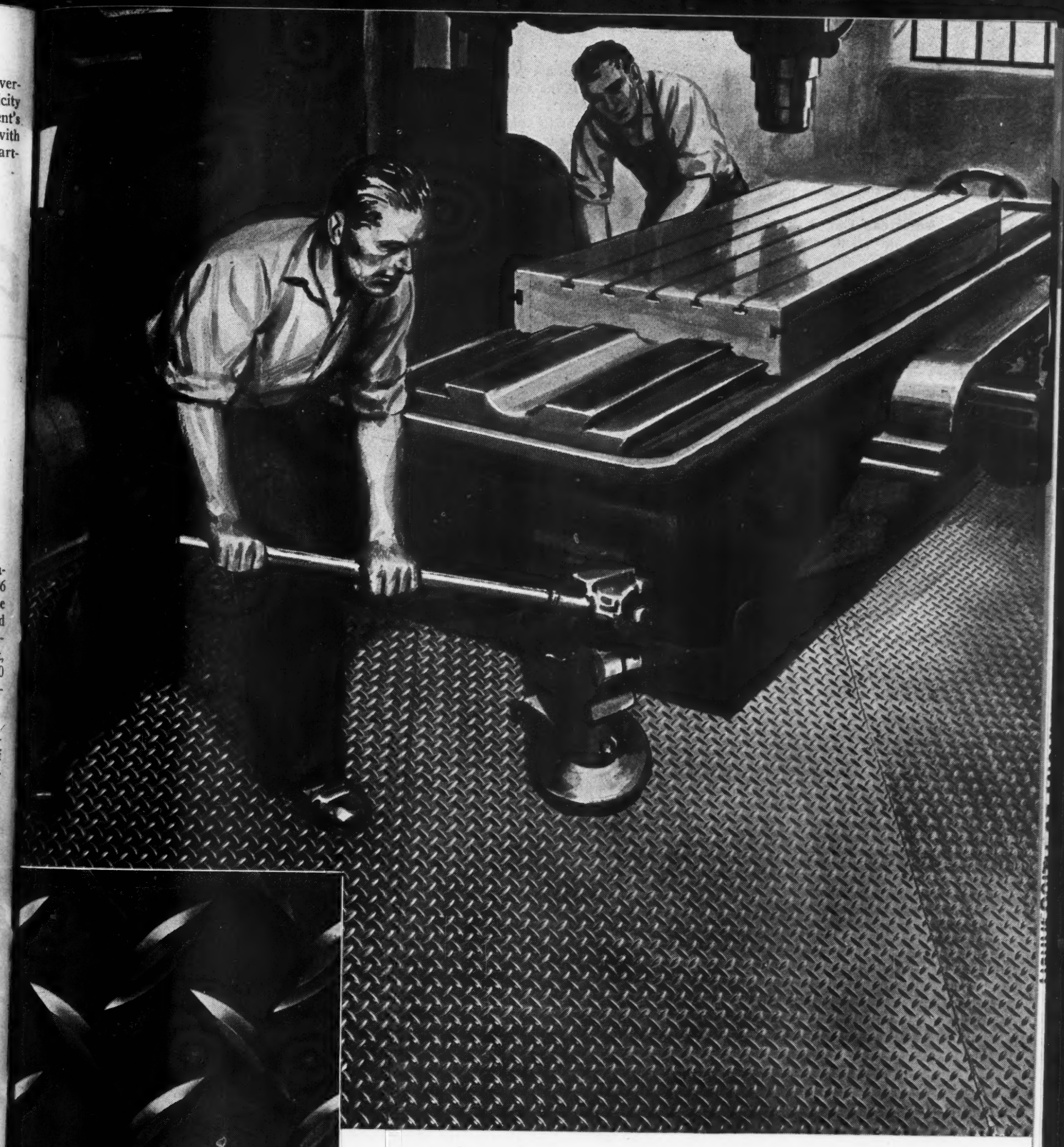
Elmer L. Weber has been appointed advertising and sales promotion manager of the paint division of the **Glidden Company,** Cleveland, Ohio, to succeed **P. L. Lotz,** who has been transferred to California for special sales work with the Glidden Pacific Coast division.

Edward A. Egan, who has been a United States commissioner of conciliation attached to the Chicago office of the United States Conciliation Service, has been ap-

Edward A. Egan

pointed director of industrial relations of the **General American Transportation Corporation** and will head the corporation's newly-created industrial relations department. Following education in universi-

News Department continued on next left-hand page



They <u>both</u> need protection! . . . It's a big responsibility—supplying protection to floors as well as trained personnel. "A.W." Rolled Steel Floor Plate makes floors rugged, permanently safe—despite hours of punishing wear. No worn or slippery surfaces to endanger men on foot. Shown above is the "A.W." Super-Diamond Pattern which resists slipping in *any* direction. Plate can be cut and installed almost overnight without disturbing production. Write for folder.

Other products include Plates, Sheets, Billets, Blooms, Slabs—Carbon, Copper or Alloy analyses.

ALAN WOOD STEEL COMPANY

MAIN OFFICE AND MILLS: CONSHOHOCKEN, PENNSYLVANIA : SINCE 1826. District Offices and Representatives, Philadelphia, New York, Boston, Atlanta, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Houston, St. Paul, New Orleans, Pittsburgh, Roanoke, Sanford, N. C., St. Louis, Los Angeles, San Francisco, Seattle, Montreal.

ties in the United States and Canada in which he specialized in personnel and labor relations, he advanced through various production jobs in steel mills and other plants to industrial relations work. Early in 1942 he joined the Chicago staff of the United States Conciliation Service which position he has held until his recent appointment..

The **American Car & Foundry Company's** Chicago plant, which is wholly engaged in building railroad cars, was presented with the Army-Navy "E" award on May 10. This is the sixth member of the a.c.f. group to win the award.

Dr. George E. Hulse has been appointed research director of the **National Battery Company's** Gould Commercial Division, Depew, N. Y. He was formerly in charge of physical research in the general laboratory of the United States Rubber Company, at Passaic, N. J.

Charles G. Learned, vice-president of the **Okadee Company** and of the **Viloco Railway Equipment Company,** of Chicago, has been elected first vice-president of these companies. **Irving W. Hebner,** formerly industrial manager of the Okadee Company, has been elected vice-president in charge of industrial and marine sales of that company, and **Edwin L. Cull,** formerly of the engineering department of the Okadee Company and the Viloco Railway Equipment Company, has been appointed mechanical engineer of the two companies. Mr. Cull was formerly with the Illinois Central.

TRADE PUBLICATIONS

USED RAILROAD EQUIPMENT. — Dulien Steel Products, Inc., of Washington, D. C., industrial liquidators, have compiled a 32-page booklet showing a portion of the stock of used railroad equipment in their inventory. The booklet, titled "Speeding to Victory," presents photos and accompanying descriptive details of a number of locomotives, freight and passenger-train cars and other equipment which the company has available. The booklet will be forwarded to interested parties upon request.

Equipment and Supplies

SIGNALING

The SOUTHERN has placed an order with the General Railway Signal Company for an all-relay electric interlocking plant to be installed at Asheville, N. C. for control of a remote location at Murphy Junction.

The ATCHISON, TOPEKA & SANTA FE has placed a contract with the General Railway Signal Company for materials to make an addition to the existing electric interlocking plant at Stockton, Calif.

The ELECTRO-MOTIVE DIVISION OF GENERAL MOTORS has placed an order with the General Railway Signal Company for four intermittent inductive engine equipments for installation on New York Central locomotives.

The BALTIMORE & OHIO has placed a contract with the General Railway Signal Company for a coded centralized traffic control system to control a distance of 0.4 miles of single track between Renick, Ohio and Scioto Junction.

Construction

Commission to Allocate Grade Crossing Costs in New York

The New York State Public Service Commission has instituted a series of proceedings to determine and allocate the costs of a number of grade crossing eliminations completed in recent years in various parts of the state. The first hearings, involving the completed elimination of grade crossings in Syracuse, N. Y., on the Delaware, Lackawanna & Western and on several grade crossing eliminations on the Erie, will take place June 15, at Syracuse. Hearings on the New York Central and Erie elimination projects in Dunkirk, N. Y., have been set tentatively for July 6 at Albany. The costs to be determined amount to millions of dollars, and the railroads will reimburse the state to the extent of net benefits derived by them from incidental improvements which were not essential in the elimination projects.

BALTIMORE & OHIO.—Division 4 of the Interstate Commerce Commission has approved this company's application for authority to construct and operate a line from Donaldson, W. Va., to Johnson Run, 7.62 miles, but has denied that part of the application which applied to an extension from Johnson Run to the three forks of the Williams river, 2.01 miles, without prejudice to a renewal of that application later. The cost of construction is estimated at $445,000.

CHICAGO, BURLINGTON & QUINCY.—Contracts have been awarded the Ogle Construction Company, Chicago, for the construction of a 200-ton steel coaling station at Sheridan, Wyo., and another at McCook, Neb., each of which will cost about $40,000.

CHICAGO, BURLINGTON & QUINCY.—A contract for about $30,000 has been awarded the Lamson Company, Syracuse, N. Y., for the installation of an pneumatic message tube system at the new westbound yard in Galesburg, Ill.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded the Stark Building Company, Cedar Rapids, Iowa, for the construction of a new, fully-equipped brick enginehouse in that city, consisting of 12 stalls 115 ft. long. This work will cost more than $110,000.

CHICAGO, BURLINGTON & QUINCY.—Two contracts have been awarded as follows for the construction of a passenger Diesel repair shop at 14th Street, Chicago, with concrete foundation, steel frame and transite siding: A contract amounting to about $15,000 to G. A. Johnson, general contractor, Chicago, for the construction of concrete pits, floors and walls and for rearranging oil storage facilities; and a contract amounting to about $55,000 to the Vierling Steel Company, Chicago, for taking down the steel frame of an old car shop at Galesburg, and the refabrication and erection of this steel for the new repair shop, together with the transite siding.

CHICAGO, ROCK ISLAND & PACIFIC.—Contracts have been awarded the Faleide Engineering Company and the Herkel & Carlson Co., both of Chicago, for replacing a 500-ton wood coaling station at the Burr Oak engine terminal, Blue Island, Ill., with a 500-ton electrically-operated steel skip-hoist type coaling station. The total cost of this work will be more than $55,000.

LOUISVILLE & NASHVILLE.—This road has undertaken a number of construction and improvement projects at various points of the road, which will be completed at a total cost of $295,744. The various jobs and their individual costs are as follows: reconstruction of the passenger station, jointly with the Illinois Central, at Milan, Tenn., $56,215; construction of a coal mine spur at Romney, Ky., $87,516; installation of a relay type interlocker, jointly with the Chesapeake & Ohio, at Winchester, Ky., $20,122; improvement of water clarifying facilities at DeCoursey, Ky., $25,760, and construction of a coal mine spur at Drakesboro, Ky., $106,131.

MANUFACTURERS RAILWAY COMPANY.—This road has awarded a contract, amounting to $22,000, to the W. C. Harting Construction Company, St. Louis, Mo., for the construction of a warehouse at St. Louis.

NEW YORK, NEW HAVEN & HARTFORD.—This railroad has authorized the construction of a bunk and locker building for train crews at South Worcester, Mass., at an estimated cost of $22,000.

NORTHERN PACIFIC. — This road has started an improvement program on its passenger station at Billings, Mont., which will include replacing brick platforms with reinforced concrete, rearranging station tracks, relocating water piping and hydrants, and installing floodlights. The project will be completed at an approximate cost of $170,000.

U. S. NAVY DEPARTMENT.—The Navy Department has awarded a contract, amounting to $1,889,043, to the General Construction Company, Seattle, Wash., for the construction of the first unit of the $12,000,000 Bremerton-Shelton (Wash.) railroad. The awarding of a contract for the surveying of the proposed railway, to Shaw-Naess & Murphy, Chicago, was reported in the *Railway Age* of March 25.

WAR DEPARTMENT.—The Kansas City, Mo., district office of the U. S. Corps of Engineers has been granted authorization to award a contract for the construction of a railroad spur, additional warehouses, roads and appurtenances in Kansas. The project is to cost approximately $867,700.

WAR DEPARTMENT.—The U. S. Engineer office, at Baltimore, Md., has awarded a contract, amounting to $86,784, to A. S. Wikstrom, Bound Brook, N. J., for the construction of railroad tracks, sheds and additions to buildings in Pennsylvania. The U. S. Engineer office at San Francisco, Calif., has awarded a contract, amounting to $52,366, to A. D. Schader, San Francisco, for the construction of a railroad hold yard in California.

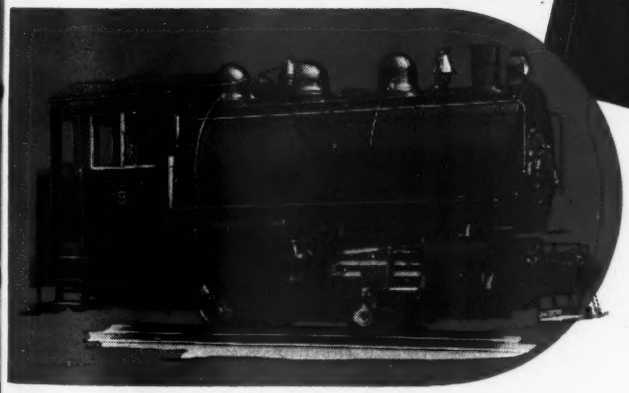
News Department continued on next left-hand page

PORTER Steam Locomotives

Lower Operating Costs

Less Maintenance

Greater Availability



Here are some of the features that give PORTER Locomotives their EXTRA STAMINA

1. Extra-heavy frames, flame-cut from solid, heavy-section, Universal mill plate. Annealed and heat-treated after cutting.
2. Axles, crank pins, guides, rods, and other strain-bearing parts solid-forged from best quality open hearth steel.
3. Extra large bearing surfaces on all moving parts.
4. Accurate machining of all wearing and fitted surfaces.
5. Case-hardened pins and bushings at all vital parts.

PORTER "Better Built" Equipment
Established 1866

ARMY NAVY

LOCOMOTIVE DIVISION:
Diesel, Diesel-Electric, Electric, Steam, and Fireless Steam Locomotives.
MT. VERNON CAR DIVISION:
Complete Line of Freight Cars
PROCESS EQUIPMENT DIVISION:
Complete Line of Chemical, Food, and Petroleum Refinery Equipment.
QUIMBY PUMP DIVISION:
Screw, Rotex, Centrifugal, Chemical Pumps.
ORDNANCE DIVISION:
Projectiles, Heavy Forgings, Breech Blocks, Winches.

H. K. PORTER COMPANY, Inc.

PITTSBURGH, PA. • BLAIRSVILLE, PA.

NEWARK, N.J. • NEW BRUNSWICK, N.J. • MT. VERNON, ILL.

Financial

ATLANTIC COAST LINE.—*Acquisition of Subsidiaries.*—This company has applied to the Interstate Commerce Commission for authority to acquire the property of the Moore Haven & Clewiston and the Washington & Vandemere, both of which it now controls through stock ownership and operates under lease.

BALTIMORE & OHIO.—*To Issue Notes.*—The B. & O. has issued a request for bids on a proposed $605,250 issue of promissory notes, series C, subject to the approval of the Interstate Commerce Commission. The notes will be issued under a conditional sale agreement and assignment, dated July 1, 1944, and will mature in 40 consecutive equal quarterly installments beginning December 1, 1944. Proceeds are to be applied to the purchase of ten new Diesel-electric switching locomotives from the American Locomotive Company, deliveries of which are expected to begin in July.

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC. — *Reorganization.* — The Federal District Court at Chicago has set June 5 as the deadline for filing objections and arguments concerning the modified plan of reorganization of the Milwaukee and June 26 as the date for a hearing.

CHICAGO, ROCK ISLAND & PACIFIC.—*Loan.*—The First National Bank of Chicago was the successful bidder on May 11, on a $6,000,000 loan to the Rock Island Lines at an interest rate of 1.69 per cent. The loan represents 75 per cent of the cost of 9 new 5,400 h.p. Diesel freight locomotives; 10 new 4-8-4 road freight steam locomotives and 500 new 50-ton box cars.

CHICAGO, SOUTH SHORE & SOUTH BEND.—*Par Value of Stock.*—This company has applied to the Interstate Commerce Commission for authority to convert the 77,895 shares of its $50 par value common stock outstanding into 311,580 shares of $12.50 par value, in order that the marketability of the stock may be improved for the benefit of the principal holder, the Midland Utilities Co., which plans to dispose of it publicly.

GREAT NORTHERN.—*Annual Report.*—The 1943 annual statement of this road shows a net income, after interest and other charges, of $19,590,548, as compared with a net income of $29,054,021 in 1942. Selected items from the income statement follow:

	1943	Increase or Decrease Compared with 1942
Average Mileage Operated	8,209.57	+114.84
RAILWAY OPERATING REVENUES	$200,573,426	+$35,367,395
Maintenance of way and structures	28,616,041	+9,814,665
Maintenance of equipment	35,530,748	+9,230,540
Transportation—rail line	49,779,649	+8,106,682
TOTAL OPERATING EXPENSES	122,771,867	+29,453,391
Operating ratio	61.2	+4.7
NET REVENUE FROM OPERATIONS	77,801,559	+5,914,004
Railway tax accruals	48,461,070	+17,733,730
RAILWAY OPERATING INCOME	29,340,489	−11,819,726
Equipment rents—Net Dr.	390,019	−969,916
Joint facility rents—Net Dr.	387,503	+32,299
NET RAILWAY OPERATING INCOME	28,562,967	−10,882,109
Total other income	5,061,255	+468,377
TOTAL INCOME	33,624,222	−10,413,732
Rent for leased roads and equipment	19,970	+176
Interest on funded debt—Fixed interest	12,477,361	−806,529
TOTAL FIXED CHARGES	12,506,172	−1,204,824
NET INCOME	19,590,548	−9,463,473

FONDA, JOHNSTOWN & GLOVERSVILLE.—*To Acquire Leased Line.*—On May 10, the New York State Public Service Commission authorized this railroad to acquire the entire 500 shares of $100 par value capital stock of the Johnstown, Gloversville & Kingsboro Horse, a leased line, which will be dissolved.

GREAT NORTHERN. — *New Director Elected.*—John S. Baker, chairman of the board of the Bank of Manhattan, New York, has been elected to the board of directors of the Great Northern, succeeding his father, Stephen Baker, who has resigned.

LOUISVILLE & NASHVILLE.—*Annual Report.*—The 1943 annual statement of this road shows a net income, after interest and other fixed charges, of $21,213,757, as compared with a net income of $19,407,582 in 1942. Selected items from the income statement follow:

	1943	Increase or Decrease Compared with 1942
Average Mileage Operated	4,744.84	−32.59
RAILWAY OPERATING REVENUES	$208,799,302	+$39,974,751
Maintenance of way	19,380,574	+4,969,147
Maintenance of equipment	31,777,730	+3,758,226
Transportation—Rail line	58,211,398	+8,900,048
TOTAL OPERATING EXPENSES	118,152,434	+19,123,776
Operating ratio	56.6	−2.1
NET REVENUE FROM OPERATIONS	90,646,868	+20,850,975
Railway tax accruals	67,952,136	+19,581,547
RAILWAY OPERATING INCOME	22,694,732	+1,269,428
Equipment rents—Net Cr.	3,930,498	+639,663
Joint facility rents—Net Dr.	1,111,829	+127,776
NET RAILWAY OPERATING INCOME	25,513,401	+1,781,316
Total other income	4,521,724	−368,263
TOTAL INCOME	30,035,125	+1,413,052
Rent for leased roads and equipment	301,691	−5,394
Interest on funded debt	8,350,775	−356,694
TOTAL FIXED CHARGES	8,724,299	−404,296
NET INCOME	21,213,757	+1,806,174

NEW YORK, CHICAGO AND ST. LOUIS.—*Equipment Trust Certificates.*—The New York, Chicago and St. Louis on May 11 awarded, subject to Interstate Commerce Commission approval, an issue of $1,800,000 of serial equipment trust certificates of 1944 to the Manufacturers and Traders Trust Company, of Buffalo, N. Y., on its bid of 99.777 for 1¾ per cent obligations, an interest cost basis to the company of approximately 1.79 per cent. It is understood that the bid was made on behalf of itself, the Central National Bank of Cleveland, Ohio and the Lincoln-Alliance Bank & Trust Co. of Rochester, N. Y.

The certificates will be dated May 15, 1944, and will mature in ten equal annual installments of $180,000 each, payable May 15 of each year starting in 1945. Interest will be payable semi-annually on November 15 and May 15.

The new issue will finance in part the purchase of 500 fifty-ton all-steel hopper bottom gondola cars, and 300 fifty-ton all-steel box cars, to cost approximately $2,260,632.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*Annual Report.*—The 1943 annual statement of this road shows a net income, after interest and other charges, of $3,696,227, as compared with a net income of $4,319,615 in 1942. Selected items from the income statement follow:

	1943	Increase or Decrease Compared With 1942
Average Mileage Operated	1,085.47	−21.9
RAILWAY OPERATING REVENUES	$42,284,019	+$11,355,151
Maintenance of way and structures	5,094,371	+2,139,617
Maintenance of equipment	6,955,499	+1,844,357
Transportation	12,153,002	+2,388,250
TOTAL OPERATING EXPENSES	26,459,060	+6,796,27
Operating ratio	62.57	−1.0
NET REVENUE FROM OPERATIONS	15,824,960	+4,558,87
Railway tax accruals	9,914,308	+4,866,36
RAILWAY OPERATING INCOME	5,910,652	−307,48
Equipment rents—Net Dr.	1,051,055	+316,70
Joint facility rents	223,899	+4,77
NET RAILWAY OPERATING INCOME	5,083,496	−619,41
Non-operating income	212,036	+13,73
GROSS INCOME	5,295,532	−605,68
Rent for leased roads	804,416	+12.0
Interest on funded debt	740,360	+26,07
TOTAL DEDUCTIONS FROM GROSS INCOME	1,599,305	+17,70
NET INCOME	3,696,227	−623,38

PITTSBURGH & LAKE ERIE.—*Annual Report.*—The 1943 annual statement of this road shows a net income, after interest and other charges, of $4,360,906, compared with a net interest of $5,366,448 in 1942. Selected items from the income statement follow:

	1943	Increase or Decrease Compared With 1942
Average Mileage Operated	231.3	−1.2
RAILWAY OPERATING REVENUES	$34,809,042	+$664,42
Maintenance of way and structures	4,047,511	+1,154,38
Maintenance of equipment	10,711,228	+870,33
Transportation	10,099,269	+722,70
TOTAL OPERATING EXPENSES	26,581,235	+2,833,19
Operating ratio	76.36	+6.8
NET REVENUE FROM OPERATIONS	8,227,807	−2,16
Railway tax accruals	8,565,549	−90,43

News Department continued on next left-hand page

A Bright Spot on the Production front

MT. VERNON CARS

The Mt. Vernon car plant is located in an area of adequate labor supply (Group III). This fact, together with one of the most completely-equipped modern car shops in the country, and the Mt. Vernon tradition of quality workmanship, are important factors to consider under present day conditions.

PORTER "Better Built" Equipment
Established 1866

MT. VERNON CAR DIVISION: Complete Line of Freight Cars

LOCOMOTIVE DIVISION: Diesel, Diesel-Electric, Electric, Steam, and Fireless Steam Locomotives.

PROCESS EQUIPMENT DIVISION: Complete Line of Chemical, Food, and Petroleum Refinery Equipment.

QUIMBY PUMP DIVISION: Screw, Rotex, Centrifugal, Chemical Pumps.

ORDNANCE DIVISION: Projectiles, Heavy Forgings, Breech Blocks, Winches.

MT. VERNON CAR MFG. CO.

Division of **H. K. PORTER COMPANY, Inc.**

PITTSBURGH, PA. · BLAIRSVILLE, PA. · MT. VERNON, ILL. · NEWARK, N. J. · NEW BRUNSWICK, N. J.

Railway Operating Income	.....	.....
Equipment rents—Net Cr.	5,758,892	+337,123
Joint facility rents—Net Cr.	452,074	+246,183
Net Railway Operating Income	5,873,225	+1,505,054
Total other income	374,255	+43,815
Total Income	6,247,480	−1,461,239
Rent for leased roads and equipment	41,176	+9,816
Total Fixed Charges	44,587	−48,808
Net Income Transferred to Earned Surplus	4,360,906	−1,005,543

Pittsburgh & West Virginia.—*Settles Coal Company Claims.*—An agreement to settle the claims of William G. Heiner, trustee for the Pittsburgh Terminal Coal Corporation, against this railroad, the North American Coal Corporation and the Pennroad Corporation, for $1,803,319 and $400,000 in property, was reported reached on May 10. A clause in the agreement transfers to the Pennroad Corporation or the Pittsburgh & West Virginia all interest of the Pittsburgh Terminal Coal Corporation in the Castle Shannon Coal Corporation and the Pittsburgh Terminal Land Company, plus 12,600 acres of coal land in Washington County, Pa., and 2,649 shares of stock and $10,000 in bonds in the Pittsburgh & West Virginia held by the coal company. The agreement is subject to the approval of the Reconstruction Finance Corporation. (Previous item in *Railway Age of* April 29, page 837.)

Rutland.—*Appeals Reorganization Ruling.*—On May 11, a petition was filed in the Second Circuit Court of Appeals at New York on behalf of bondholders and bond trustees and counsel for the reorganization managers, asking a rehearing of a decision by the United States Circuit Court of Appeals, which provided that equity proceedings be dismissed and the road reorganized under section 77 of the bankruptcy laws. (Previous item in *Railway Age* of May 6, page 880.)

Seaboard Air Line.—*Equipment Trust Certificates.*—Secretary of Commerce Jones has announced the sale by the Reconstruction Finance Corporation to Hallgarten & Co. of $1,938,000 of this road's 2¾ per cent series LL equipment trust certificates at 103.4729, to yield about 1.85 per cent. This transaction resulted in a premium to the R. F. C. of $67,305.

Wheeling & Lake Erie.—*Annual Report.*—The 1943 annual statement for this road shows a net income, after interest and other charges, of $3,390,129, as compared with a net income of $3,374,269 in 1942. Selected items from the income statement follow:

	1943	Increase or Decrease Compared with 1942
Average Mileage Operated	507.20	.....
Railway Operating Revenues	$26,128,224	+$1,886,522
Maintenance of way and structures	2,725,648	−79,662
Maintenance of equipment	4,538,116	+533,402
Transportation—rail line	7,348,447	+594,417
Total Operating Expenses	15,704,292	+1,130,107
Operating ratio	63.7	+3.58
Net Revenue From Operations	10,423,933	+756,416
Railway tax accruals	8,489,250	+780,697
Railway Operating Income	1,934,683	−24,281
Net rents—Cr.	1,809,980	−12,216
Net Railway Operating Income	3,744,663	−36,497
Total other income	206,680	+39,884
Total Income	3,951,343	+3,387
Interest on funded debt	537,942	−13,238
Total Fixed Charges	542,443	−8,913
Net Income Transferred to Profit and Loss	3,390,129	+15,860

Dividends Declared

Albany & Vermont.—Increased, $1.25, payable May 15 to holders of record May 1.

New York Central.—50¢, payable July 15 to holders of record May 27.

North Pennsylvania.—$1.00, quarterly, payable June 10 to holders of record June 3.

Pittsburgh & Lake Erie.—$2.50, payable June 15 to holders of record May 19.

Rutland & Whitehall.—$1.05, payable May 15 to holders of record May 1.

Abandonments

Eastland, Wichita Falls & Gulf.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its entire line from Mangum, Tex., to Ringling Junction, 28.62 miles, and to abandon operation under trackage rights over the Wichita Falls & Southern from Ringling Junction to Breakwalker, 1.2 miles, on condition that it sell the line or any portion, at not less than salvage value, to any person making such an offer within 30 days. The division found that the revenues reasonably to be expected from continued operation would not meet expenses. A representative of its seven operating employees petitioned the commission to reserve jurisdiction for their protection against economic loss resulting from the abandonment for a period of two years after the close of the war, but the division pointed out that "a carrier cannot be compelled to continue in operation at a loss merely to furnish employment."

Jacksonville, Gainesville & Gulf.—Division 4 of the Interstate Commerce Commission has authorized the abandonment of the line from Gainesville, Fla., to Superior, about 33 miles, which was formerly owned by this company and which it recently has operated under court order for the present owner, Russell M. VanKirk. That part of the application which applied to the line from Superior to Emathla, about 3 miles, was dismissed "as it presents nothing on which we can act," the division reported, it having been dismantled in 1939 without the permission of any public authority. The certificate, effective July 1, provides that the line or any part shall be sold for continued operation to any purchaser offering the net salvage value, and the report pointed out that acquisition by the Atlantic Coast Line, of certain trackage within the corporate limits of Gainesville was in prospect. Commissioner Miller dissented from the findings of the division's majority, suggesting that it should have been limited to abandonment only of operations in interstate and foreign commerce.

Railway Officers

EXECUTIVE

J. K. Thompson has resigned as vice-president in charge of accounting, finance and purchases of the Erie, to become president of the Union Bank of Commerce at Cleveland, Ohio. Mr. Thompson will continue as a member of the Erie board and of its finance committee.

Charles W. Moore, whose promotion to executive assistant in charge of public relations of the Great Northern, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of May 6, was born at Villisca, Iowa, on February 15, 1903, and received his education at Drake University. In 1923

Charles W. Moore

he became a reporter on the Des Moines (Iowa) Capitol, and later served in a similar capacity on the Des Moines (Iowa) Register & Tribune, and the St. Paul (Minn.) Dispatch-Pioneer Press. Mr. Moore entered railway service with the public relations department of the Great Northern in September, 1937, with headquarters at St. Paul, and in 1942 he was promoted to advertising manager, holding that position until his new appointment.

FINANCIAL, LEGAL AND ACCOUNTING

George B. Barner has been appointed assistant general attorney of the Seaboard Air Line with headquarters at Norfolk, Va. He will serve in the personal injury field.

OPERATING

Robert C. Smith has been appointed trainmaster of the Cambria & Indiana, with headquarters at Colver, Pa.

F. J. Fryer, inspector of transportation of the Manitoba district of the Canadian Pacific, with headquarters at Winnipeg, Man., has been promoted to superintendent of the Regina division, with headquarters at Regina, Sask.

J. P. Cameron has been appointed superintendent of the Dakota division, Great

Northern, with headquarters at Grand Forks, N. D. He succeeds **C. O. Hooker,** who has been transferred to the Mesabi division, with headquarters at Superior, Wis.

C. O. Hooker, superintendent of the Dakota division of the Great Northern, with headquarters at Grand Forks, N. D., has been transferred to the Mesabi division, with headquarters at Superior, Wis., succeeding **F. D. Kelsey,** deceased.

C. A. Berner, assistant division superintendent of the Western region of the Canadian National, with headquarters at Prince Rupert, B. C., has been transferred to Smithers, B. C. The position of assistant superintendent at Prince George, B. C., has been abolished.

G. A. Bays, assistant superintendent of the Tucson division of the Southern Pacific, with headquarters at Tucson, Ariz., has been promoted to superintendent of that division, succeeding **H. R. Hughes,** who has been transferred to the Western division, with headquarters at Oakland Pier, Calif., replacing **John C. Goodfellow,** who has retired after 35 years' service. **B. S. Sines,** trainmaster of the Sacramento division, has been advanced to assistant superintendent of the Tucson division, relieving Mr. Bays.

John H. Cooper, superintendent of the Ft. Wayne division of the Pennsylvania, with headquarters at Ft. Wayne, Ind., has been promoted to general superintendent of the Northwestern division, with headquarters at Chicago, succeeding **Paul W. Neff,** who has been transferred to the Central Pennsylvania division, with headquarters at Williamsport, Pa. **Jacob D. Fuchs,** trainmaster of the Chicago terminal division, has been advanced to superintendent of the Indianapolis division, with headquarters at Indianapolis, Ind., relieving **David E. Smucker,** who has been transferred to Ft. Wayne, replacing Mr. Cooper.

TRAFFIC

B. H. Curley, in addition to his position as auditor of the Chattahoochee, has been appointed general freight agent.

F. M. Crocker, city passenger agent of the Canadian National at St. John, N. B., has been appointed district passenger agent at Moncton, N. B.

Earl C. Warren, assistant general freight agent of the Great Northern, with headquarters at Chicago, has been promoted to general freight agent, with the same headquarters, a change of title.

E. R. Sauerberg, commercial agent of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to division freight and passenger agent, with headquarters at Hutchinson, Kan., succeeding **W. R. Perkins,** who has been appointed commercial agent at St. Louis at his own request, replacing Mr. Sauerberg.

D. Rice Lincoln, whose retirement as assistant to the chief traffic officer of the Missouri Pacific Lines, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of May 13, was born at St. Joseph, Mo., on February 12, 1874, and entered railway service as a record clerk of the St. Joseph & Grand Island (now part of the Union Pacific), on March 4, 1888. He served in several clerical capacities with that road until 1893 when he became a tariff clerk of the Missouri Pacific. In 1906 he was promoted to assistant general freight agent, with headquarters at St. Louis, and one year later he was transferred to Kansas City, Mo. In May, 1915, Mr. Lincoln was transferred to St. Louis and in December, 1917, he was granted a leave of absence to serve as assistant director of traffic of the United States Food Administration, with headquarters at Washington, D. C. From 1918 to 1919 he served with the United States Railroad Administration as chairman of the Kansas City District Freight Committee and from 1919 to 1920 as assistant director of traffic. In March of the latter year he returned to the Missouri Pacific as assistant freight traffic manager, with headquarters at St. Louis, and in October, 1927, he was promoted to freight traffic manager, with the same headquarters. In November, 1936, Mr. Lincoln was advanced to the position he held at the time of his retirement.

ENGINEERING & SIGNALING

Crosby Miller has been appointed chief engineer of the Chesapeake & Ohio with headquarters at Richmond, Va. He succeeds **Ira Lawrence Pyle,** whose death on May 1 was reported in the *Railway Age* of May 6.

MECHANICAL

L. C. Kirkhuff has been appointed master mechanic of the Virginian with headquarters at Elmore, W. Va., succeeding **W. G. Gray,** who has resigned.

Philip H. Hatch, assistant mechanical engineer of the New York, New Haven & Hartford, has been appointed mechanical engineer of that road with headquarters at New Haven, Conn. Mr. Hatch, who was born at Albany, N. Y., on May 25, 1899, received a degree in electrical engineering from the Massachusetts Institute of Technology in 1921. After serving as student engineer with the General Electric Company at Albany, N. Y., he joined the Cleveland Terminals Company at Cleveland, Ohio, in 1922, as a computer. The following year Mr. Hatch entered the service of the New York, New Haven & Hartford as a special apprentice at Stamford, Conn., and VanNest. In 1924 he became an electrical inspector at Stamford, being named engineering assistant at Cos Cob power plant the same year. He was transferred to New Haven in 1927, and in 1928 became engineer of automotive equipment at New Haven. After filling the position of assistant engineer at VanNest and New Haven, Mr. Hatch was named engineer of automotive equipment at New Haven in 1936. He was appointed engineer of electric and automotive equipment at VanNest in 1938, and assistant mechanical engineer at the same location in 1941. This position he held until his new appointment as mechanical engineer with headquarters at New Haven.

Philip H. Hatch

SPECIAL

J. E. LaForce, general agent, colonization and agriculture, of the Canadian National, has retired from that position after 24 years of railway service.

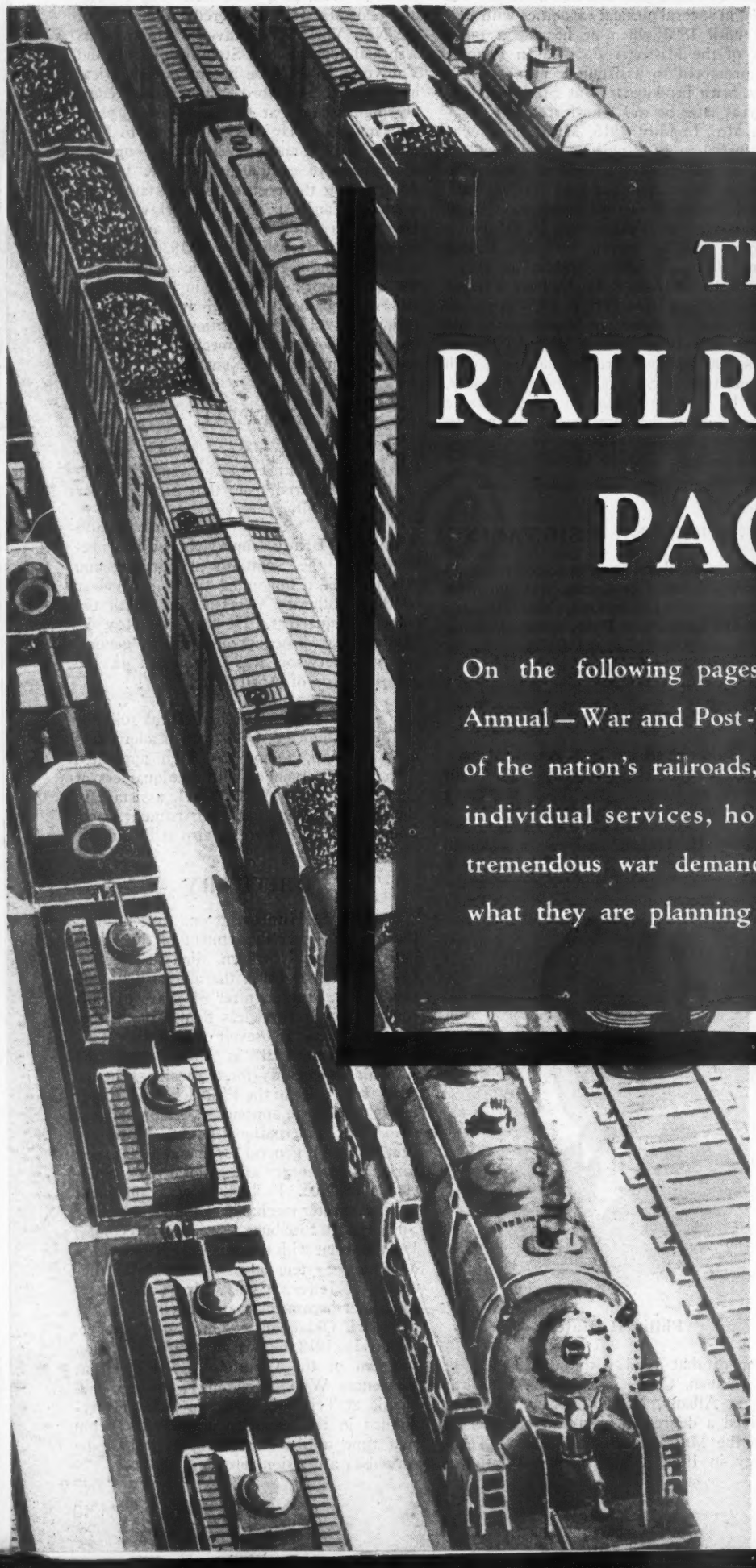
Mahlon Bracy, supervisor of fire prevention of the Southern at Birmingham, Ala., has been appointed safety supervisor of the Southern's western lines, with the same headquarters. He succeeds **Roy P. Hamilton,** whose appointment as general safety supervisor was announced in the *Railway Age* of April 15.

F. J. Goebel, assistant general solicitor of the Baltimore & Ohio with headquarters at Cincinnati, Ohio, has been appointed director of personnel with headquarters at Baltimore, Md. **W. G. Carl,** assistant to the vice-president, has been named superintendent of wage bureau, also at Baltimore.

OBITUARY

George S. Hunter, at one time head of the motive power department of the International-Great Northern, died at Denver, Colo., on April 14 at the age of about 85 years. Mr. Hunter, after 61 years of railroad service, retired less than a month before President Roosevelt signed the Railroad Retirement Bill in August, 1935, and so could not qualify for a pension. He entered the service of the Philadelphia & Reading in 1873 as an apprentice. Later he went with the International-Great Northern, being named a general foreman on that road early in the century and general master mechanic in 1906. In 1908 he was appointed division master mechanic of the Kansas City Southern at Pittsburg, Kan. In December, 1910, he went with the Missouri Pacific-Iron Mountain System as assistant master mechanic at Jefferson City, Mo., but a short time later became a master mechanic of the Missouri, Oklahoma & Gulf at Muskogee, Okla. In 1918 he was appointed division foreman of the Colorado & Southern at Cheyenne, Wyo., becoming a master mechanic at Trinidad, Colo., in 1922. He remained in this capacity until 1930. From that time until his retirement in 1935 he served as a division foreman.

FREIGHT PROGRESS ANNUAL



THE RAILROADS' PAGES

On the following pages of this Freight Progress Annual—War and Post-War—appear the messages of the nation's railroads, telling the story of their individual services, how they are meeting the tremendous war demands for transportation and what they are planning for post-war.